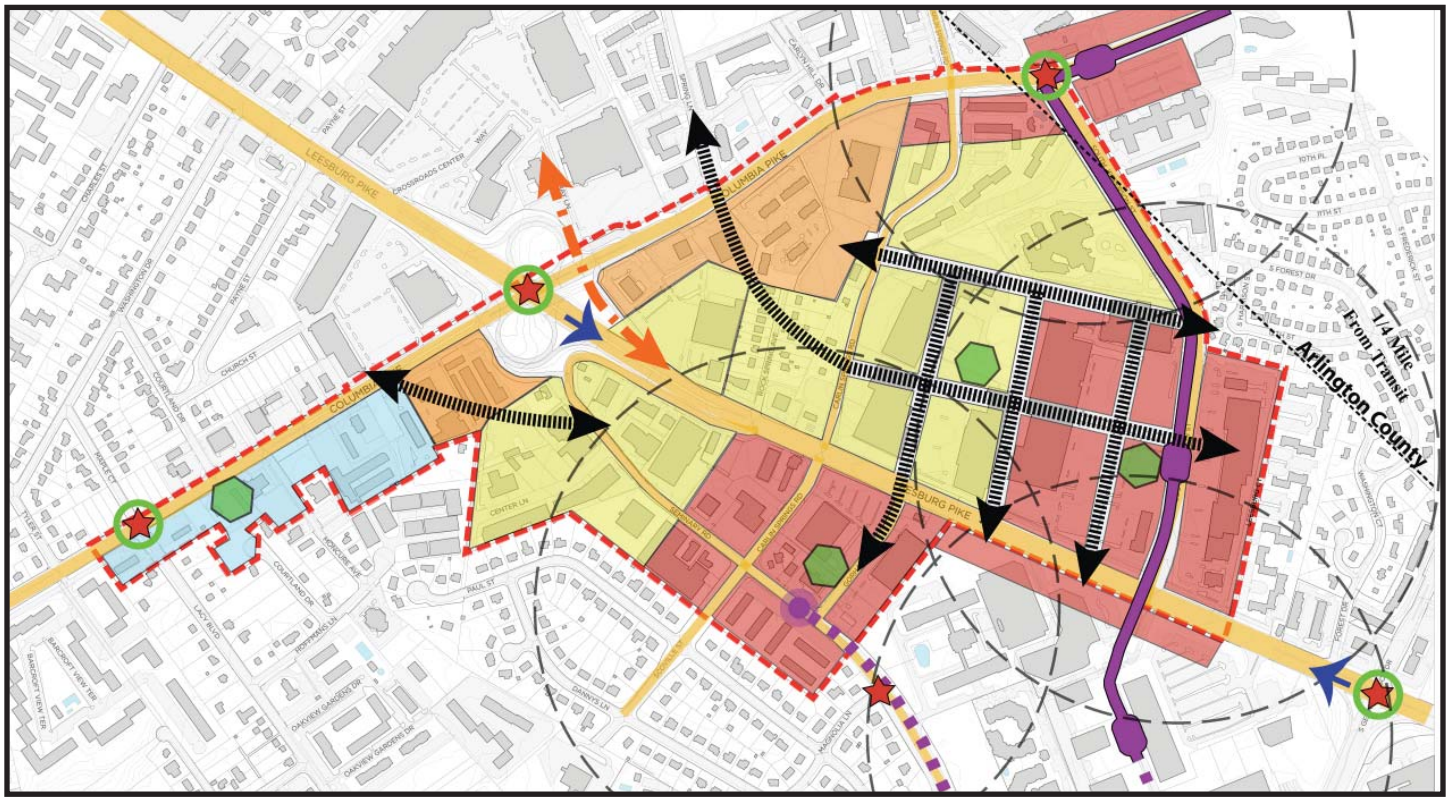
Existing Conditions Memorandum

July 2008



Baileys Crossroads Planning Study

Fairfax County, Virginia

Rummel, Klepper & Kahl • Rhodeside & Harwell • Wendel Duchscherer • Basile Baumann Prost Cole & Associates • Ferrell Madden Lewis

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BAILEYS CROSSROADS PLANNING STUDY

EXISTING CONDITIONS REPORT

Executive Summary

This document provides an overview of current conditions within the Baileys Crossroads study area. The overview focuses on those issues which are critical to address when dealing with the future of the area: land use and zoning, urban design, environmental resources, transportation and circulation, and demographic and market conditions. A considerable amount of previous thought has been given to changes needed within the study area, including the December 2006 Urban Land Institute's study, *Baileys Crossroads, Virginia; Strategies for Moving from Suburban to Urban*. The current effort builds on this earlier body of work and considers previous observations and recommendations as the "framework" for this on-going effort. In addition to this base of knowledge, however, the current existing conditions summary for the South and East Quadrants of Baileys Crossroads reflects the initial observations of the study team with regard to issues that need to be addressed, opportunities for addressing them, and constraining factors that will need to be accounted for.

An assessment of initial findings and observations summarizes the key redevelopment potentials within the study area and offers possible strategies to "bridge" the decision-making process as it progresses from existing conditions analysis to planning and design concepts. These strategies will be tested during the next phase of the planning study as the team explores conceptual designs for creating a future Baileys Crossroads area that appropriately addresses its planning and design needs in ways that can be supported by both its infrastructures and its economic potential.

Boundary Description

The area of Fairfax County, Virginia known as Baileys Crossroads is located at the "crossroads" of Leesburg Pike (Route 7) and Columbia Pike (Route 244), and includes approximately 530 acres. Baileys Crossroads is divided into North, South, East and West Quadrants along the intersection of Columbia Pike running north-south, and Leesburg Pike running east-west. This study will focus solely on the South Quadrant and the East Quadrant. Located minutes from the Pentagon and Washington, DC, Baileys Crossroads is adjacent to Arlington County on the northeast and the City of Alexandria on the southeast (Figure 1a – Boundary Map).

WEST

The study area boundary begins in the South Quadrant at the commercial lot west of the intersection of South Columbia Pike and Lacy Boulevard. From this point, the boundary travels north, across Lacy Boulevard, along the rear lot lines of parcels facing South Columbia Pike. The boundary travels southeast to Courtland Drive, then up to the bordering rear lot line and across Moncure Avenue to include the vacant, Fairfax County-owned parcel in front of the homeless shelter. The boundary drops back and travels along the rear lot lines of the car service area and office building facing South Columbia Pike, goes east past Moncure Avenue and down Williams Lane, connecting to Line Drive.

SOUTH

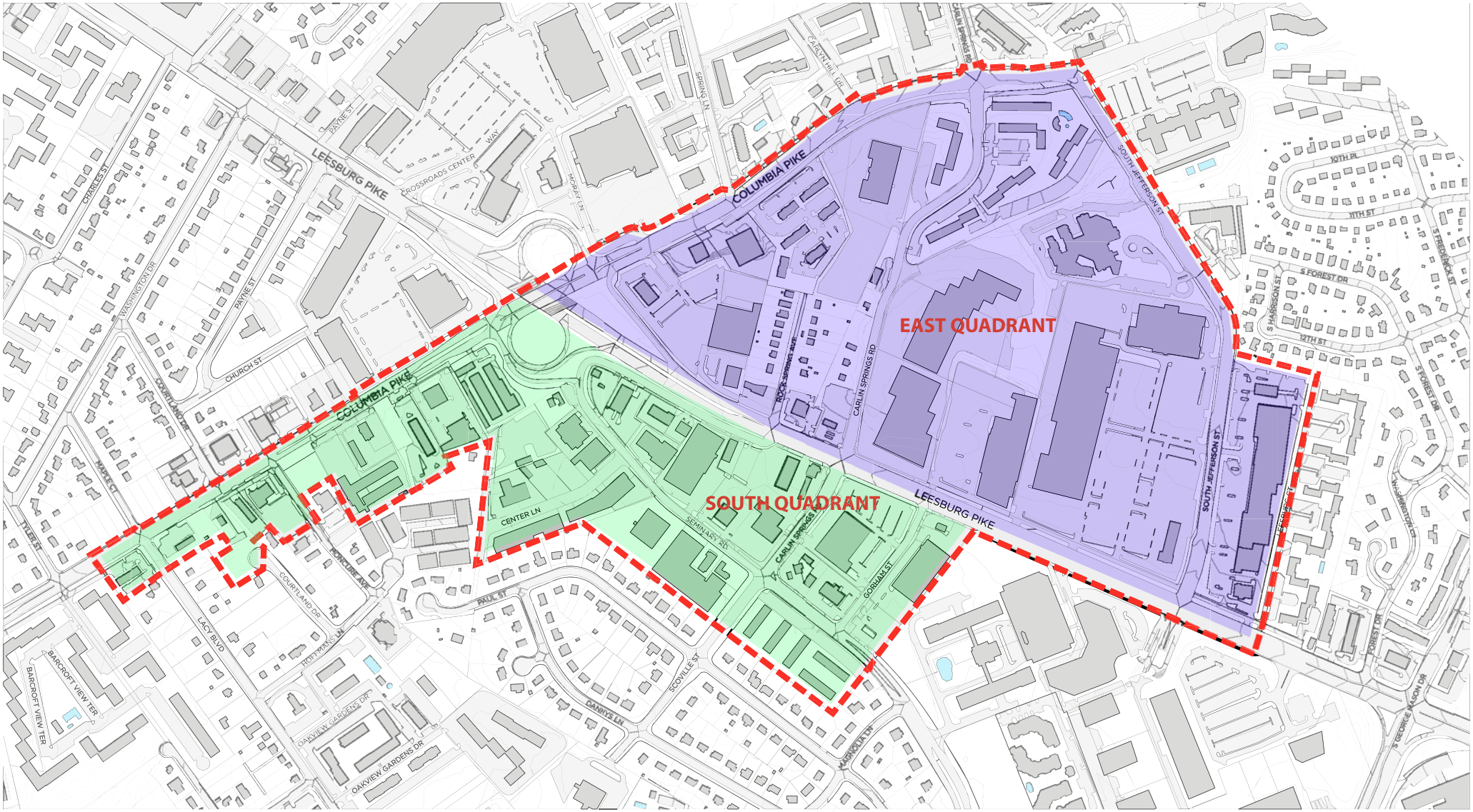
It follows Line Drive to the end, and then follows the rear lot lines shared by the auto-oriented businesses facing Center Lane and the residential development facing Paul Street. The boundary continues along the rear lot lines, and turns east to follow the rear lot lines between commercial development facing Seminary Road and residential development facing Paul Street.

EAST

The boundary crosses Scoville Street, passes behind the garden apartments facing Seminary Road, and turns north at the edge of Skyline and the commercial development on Gorham Street. The boundary enters onto Leesburg Pike and travels east along the Pike until it reaches Leesburg Court.

NORTH

It then turns left, traveling north along Leesburg Court, and turns left again to travel west across a surface parking lot. From here, it meets South Jefferson Street and begins traveling northwest along that street. The boundary then turns left at the intersection of South Jefferson Street and North Columbia Pike and begins traveling south on Columbia Pike, through the intersection of Leesburg Pike and Columbia Pike, until it reaches the commercial lot past Lacy Boulevard.



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North

0’ 100’ 500’
50’ 200’

1a. Project Boundary

- Project Limits
- Existing Structures
- Existing Pavement

Surrounding Properties

WEST

To the west of the study area is Columbia Pike and various shopping centers, including the Baileys Crossroads Shopping Center.

SOUTH

To the south of the study area are high-intensity residential and single-family developments.

EAST

To the east of the study area is the Skyline development and various high-intensity residential developments.

NORTH

To the north of the study area are various retail and commercial districts and the Arlington County line.

I. LAND USE AND ZONING

Existing Conditions

Public Facilities

There are no public facilities located immediately within the study area; however, the study area is served by schools, a library and parks in areas adjacent to it.

Schools

The Fairfax County Public Schools that serve the South and East Quadrants include Glen Forest Elementary School, Parklawn Elementary School, Glasgow Middle School, and JEB Stuart High School, although none of these schools is located in either the South or East Quadrants. Glen Forest Elementary School (approximately 1800 feet from the intersection of Columbia and Leesburg Pikes) serves the East Quadrant and the northern parcels of subunits D-2 and D-3 of the South Quadrant. Parklawn Elementary School (approximately 1.7 miles from the intersection of Columbia and Leesburg Pikes) serves the remaining areas in the South Quadrant not served by Glen Forest Elementary School, which include subunit D-1 and some parcels in subunits D-2 and D-3. JEB Stuart High School is approximately 1.2 miles from the intersection of Columbia and Leesburg Pikes, and Glasgow Middle School is approximately 1.14 miles from that same point.

Library

The library nearest to, although not located in, the South and East quadrants is the Woodrow Wilson Library. This facility serves all of Baileys Crossroads and contains 13,500 square feet.

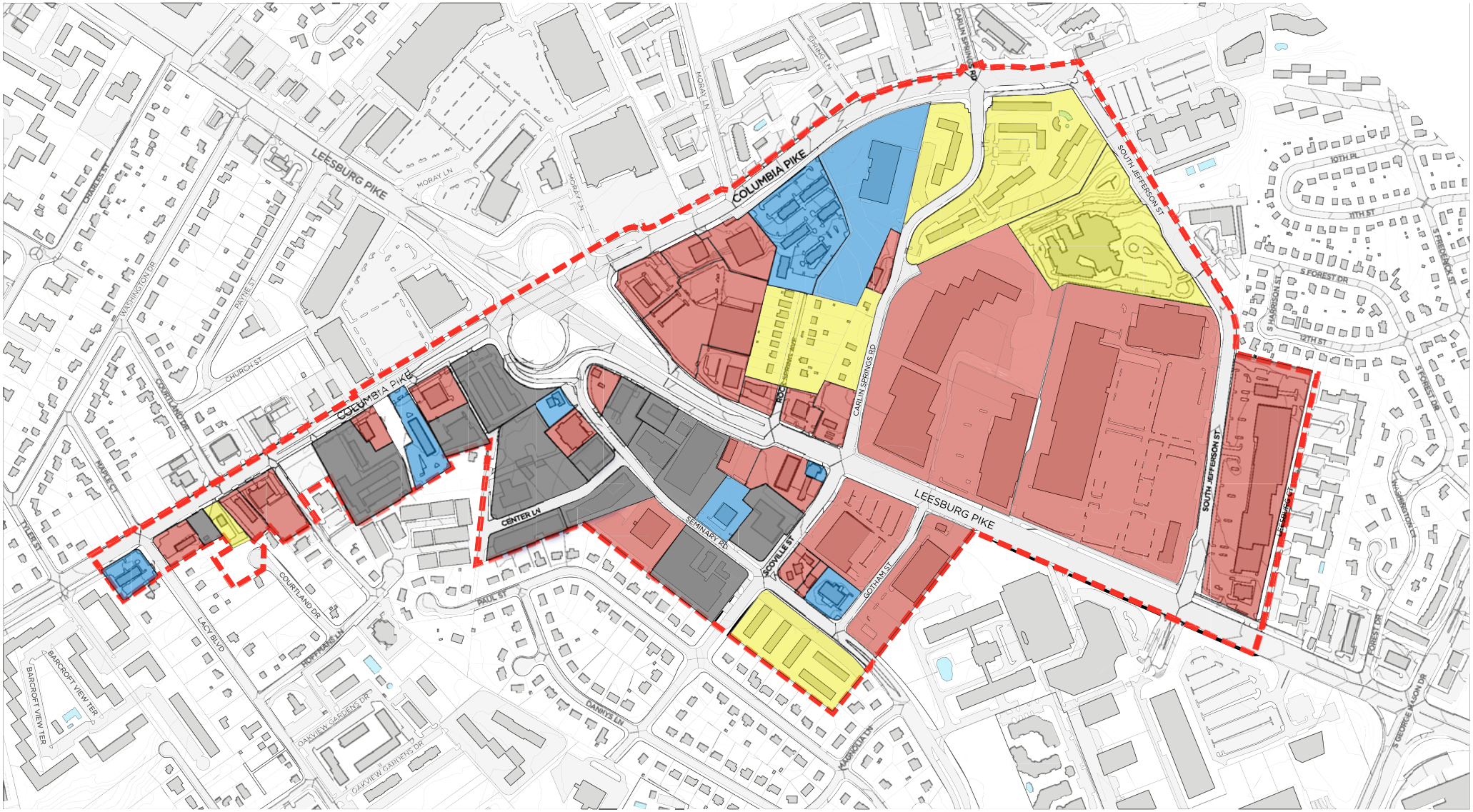
Parks

The Baileys Crossroads District is served by twelve Local parks and three District and Countywide parks, totaling approximately seventy-six acres. Parks within a one mile radius of the South and East Quadrants include Baileys Park, Spring Lane Park, Lillian Carey Park, and Dowden Terrace Park.

Land Uses and Zoning Designations

Land use in the South and East Quadrants is focused primarily on regional- and neighborhood-serving commercial development, but also includes office, residential and light industrial development. Major land uses in the study area include commercial shopping centers, free-standing retail and office buildings, auto-related industrial, and restaurants. In addition, the study area contains smaller pockets of single-family and multi-family residential development (Figure 1 – Existing Land Use).

Baileys Crossroads was identified as a Community Business Center (CBC) in the August 1990 *Policy Plan for Fairfax County*, in an effort to encourage revitalization and redevelopment of the area. The 2007 edition *Fairfax County Comprehensive Plan* shows the Baileys Crossroads CBC divided into “land units” for the purpose of organizing land



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1. Existing Land Use

- Project Limits
- Existing Structures
- Existing Pavement
- Office
- Industrial
- Vacant
- Retail
- Residential
- Open Space

use recommendations for specific subsections of the CBC. These land units and related sub-units are referred to in the 2007 Comprehensive Plan recommendations, along with area-wide recommendations, to help implement a vision for the CBC. The study area for this report includes Land Unit C in the East Quadrant (sub-units C-1, C-2, C-3, C-4, and C-5) and Land Unit D in the South Quadrant (sub-units D-1, D-2 and D-3).

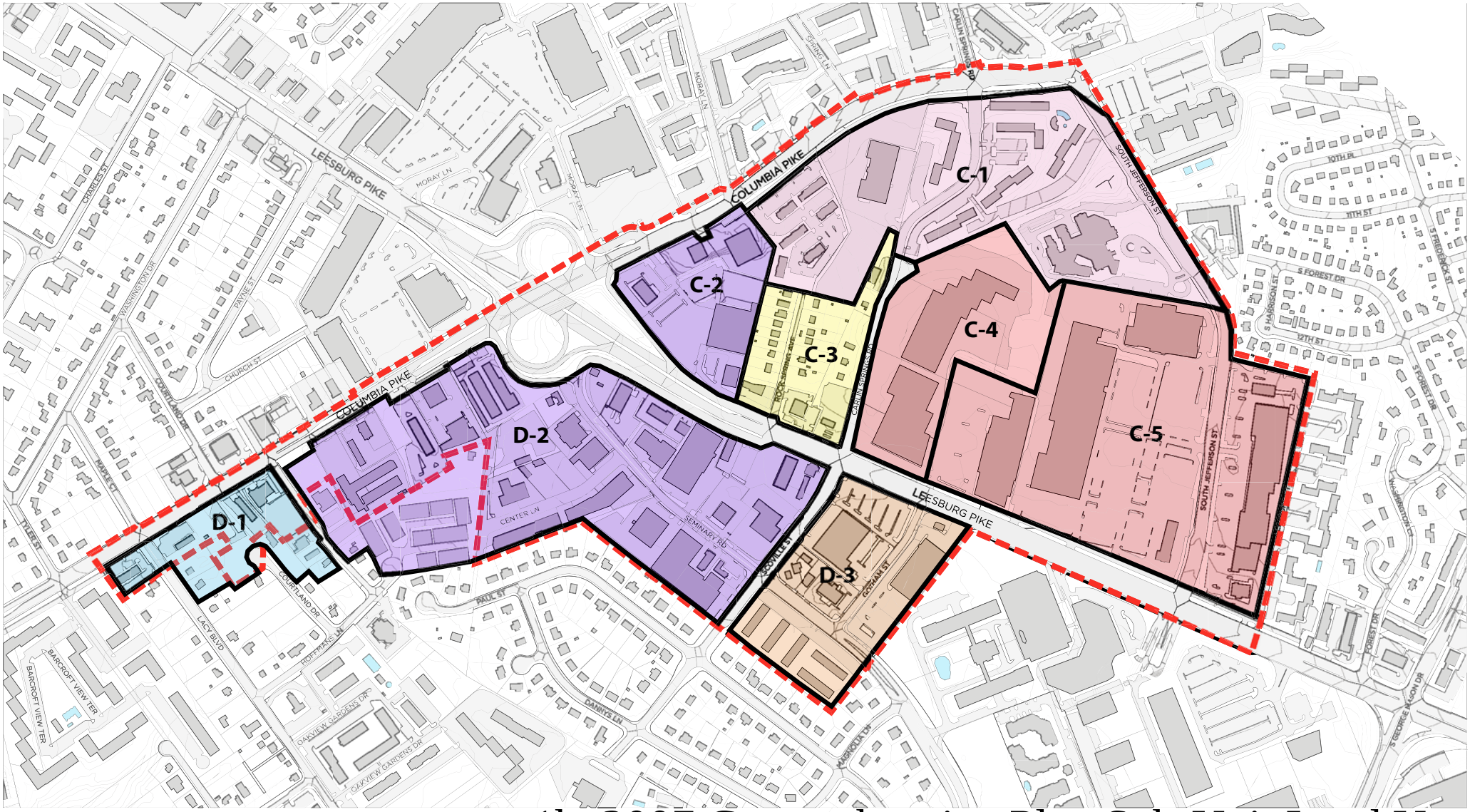
The 2007 edition *Fairfax County Comprehensive Plan* describes the intended uses of the sub-units within the Land Units located in Baileys Crossroads (Figure 1b – 2007 Comprehensive Plan Sub-Unit Land Use). Below are the intended land uses of these sub-units, as described in the 2007 Comprehensive Plan.

LAND UNIT C
C-1: Office and high-density residential land uses
C-2: Office and retail land uses
C-3: Single-family residential land use
C-4: Community-serving retail land use
C-5: Community-serving retail land use

LAND UNIT D
D-1: Office, retail and institutional land uses
D-2: Office and retail land uses
D-3: Neighborhood-serving retail land uses

Land Unit C is bounded by Columbia Pike to the north and Leesburg Pike to the south and encompasses approximately 125 acres. As indicated in Figure 2 – Existing Zoning, zoning in the East Quadrant is dominated by commercial district C-6 with pockets of commercial districts C-2, C-3, C-4, C-5, and C-8. There are also a few residential zones, including two multi-family residential buildings zoned R-20, and one single-family residential neighborhood of fifteen homes, zoned R-3. There is one industrial zone (I-3) in this area. Overall land use at the interchange of Columbia Pike and Leesburg Pike comprises clustered, free-standing office buildings, restaurants and retail. Land uses along Leesburg Pike comprise older residential areas, retail and office uses, and the Burlington Plaza and Leesburg Pike Plaza shopping centers. Carlin Springs Road divides the East Quadrant in half, separating office, retail and single-family residential development to the west from large commercial and multi-family residential development to the east. One of the multi-family residential developments to the east is the adult independent living facility, Goodwin House. The Goodwin House is currently undergoing an expansion that includes a three-story health and wellness center and a fifteen-story residential tower with 115 new independent living units.

Land Unit D is bounded by Leesburg Pike to the northeast and Columbia Pike to the northwest and encompasses approximately 57 acres. Zoning in the South Quadrant is dominated by commercial districts C-6 and C-8, with pockets of commercial districts C-2, C-3, and C-5. Dominant land uses in this quadrant are the industrially-oriented auto repair and warehouse uses along Center Lane, Seminary Road, and a portion of Carlin Springs Road. Office development and community-serving retail can be found along



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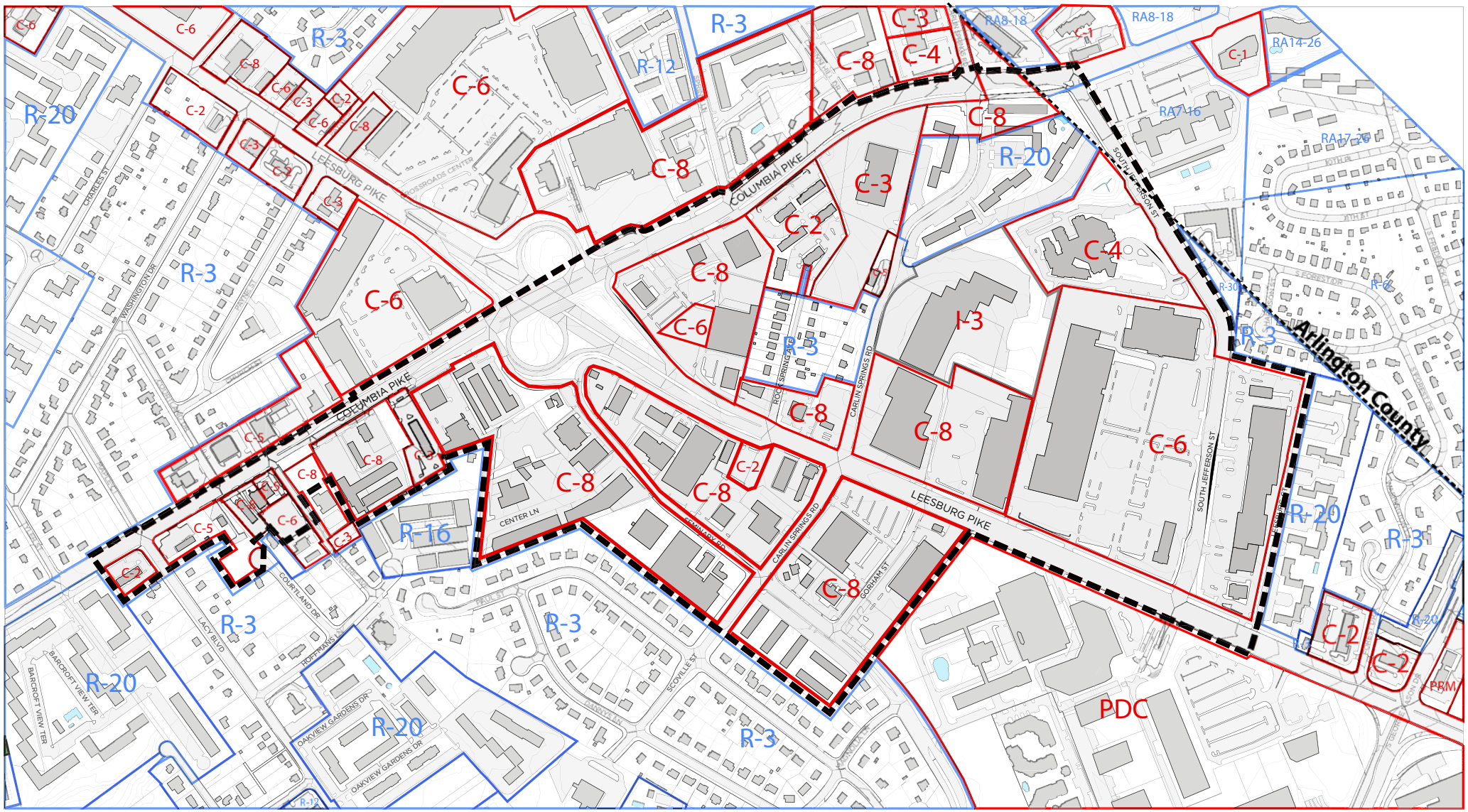
1b. 2007 Comprehensive Plan Sub-Unit Land Use

- Project Limits
- Existing Structures
- Existing Pavement
- Neighborhood-Serving Retail
- Community-Serving Retail
- Office & Retail
- Single-Family Residential
- Office & High-Density Residential
- Office, Retail & Institutional



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2. Existing Zoning

- Project Limits
- Existing Structures
- Existing Pavement
- Commercial Zone
- Residential Zone
- Industrial Zone

Columbia Pike and in the area bounded by Seminary Road and Leesburg Pike, which includes the Chesapeake Plaza Shopping Center. Other land uses in the South Quadrant include wholesale trade facilities, a storage facility, a Fairfax County-owned parcel, a homeless shelter, communications offices and an animal hospital.

Fairfax County Comprehensive Plan; Baileys Planning District

The vision for Baileys Crossroads in the 2007 edition *Fairfax County Comprehensive Plan; Baileys Planning District* focuses on the retention, redevelopment, and revitalization of community-serving retail uses, in addition to a mixture of neighborhood-serving retail, office, residential, and recreational uses at a pedestrian scale. The Comprehensive Plan defines the Baileys Crossroads area as the Baileys Crossroads Community Business Center (CBC), which is defined as the junction of Columbia Pike and Leesburg Pike. Planning objectives in the 2007 Comprehensive Plan include preserving stable residential neighborhoods by encouraging infill development that respects the character and intensity of existing residential development, limiting intrusion of commercial development into residential neighborhoods, establishing a clearly defined 'edge' between commercial and residential development, improving the appearance and function of the area, encouraging pedestrian access, creating parks and recreational opportunities, and preserving significant heritage areas.

Future commercial and residential development in Baileys Crossroads will require land uses that are pedestrian-accessible, especially upon implementation of the Pike Transit Initiative. However, the auto-dominated suburban-scale of development supported by current land uses cannot provide development patterns that are sufficiently oriented to pedestrians. A reconfiguration of the area's land use patterns will be undertaken in this study in order to maximize vehicular and pedestrian connections while, at the same time, minimizing environmental degradation and protecting existing businesses, residential areas, and historic resources.

These potential new land use patterns might require establishing transitional areas between new, higher-density development in the CBC, and the existing, adjacent, low-density residential communities and the other quadrants of the Baileys Crossroads CBC. Typically, transitional areas, or "edges," include buffering, screening, and permanent open space or parkland, as well as townhouse-style offices, neighborhood retail, garden apartments, residential townhouses, lower-intensity institutional uses, and landscaped peripheral streets.

Fairfax County Official Zoning Map

The Baileys Crossroads CBC was included in the Baileys Crossroads/Seven Corners Revitalization District in October of 1998 and was given a special zoning designation within the *Fairfax County Zoning Ordinance* to encourage revitalization activities by providing greater flexibility to ordinance requirements. The *February 2008 Fairfax County Zoning Ordinance* and zoning map provide the current zoning designations for the Baileys Crossroads area. Most of the South and East Quadrants are zoned for

commercial uses, aside from two residential zones, (R-3) and (R-20), and one industrial zone, (I-3). Currently, zoning designations in both quadrants include limited office (C-2), office (C-3), high-intensity office (C-4), neighborhood retail (C-5), community retail (C-6), highway commercial (C-8), light-intensity industrial (I-3), residential districts of 3 du/acre (R-3), and residential districts of 20 du/acre (R-20). The C-8 and C-6 districts comprise the majority of the two quadrants.

The existing uses found in the two quadrants are generally permitted either by-right or under special permit or special exception. A number of "grandfathered" uses (which would be permitted under special permit or special exception if developed or modified today) and legally non-conforming uses (the garden apartments) which pre-date the current Zoning Ordinance are found in the area. These uses cannot be expanded without coming into compliance with the current ordinance.

Given the amount of neighborhood-serving commercial development envisioned by the current Comprehensive Plan, it will be important to revisit the zoning patterns of the area in order to evaluate the predominant regional commercial development pattern and the industrial land uses in the area. An effective balance between land use and zoning in this area will need to be determined. Moreover, the zoning established for the area will need to provide the flexibility to modify land use, to some extent, based on prevailing market conditions.

Adjacent Land Uses

Major land uses outside the study area, but of relevance to it, include surrounding single-family residential and multi-family residential development, and the Skyline development, which provides the most identifiable focal point for Baileys Crossroads and the most dense, consolidated mixed-use development in the area. Surrounding land uses and zoning to the east of the study area include high-intensity residential developments of 20 du/acre (R-20) and 30 du/acre (R-30), single-family residential developments of 3 du/acre (R-3), and the Skyline Planned Development Commercial (PDC). Land uses and zoning to the north of the study area comprise commercial developments (C-3, 4, and 8) and development in Arlington County. To the south of the study area are single-family residential developments of 3 du/acre (R-3), and high-intensity residential developments of 20 du/acre (R-20). To the west of the study area are commercial developments (C-3, 4, 5, 6 and 8).

Future Development

Several future development projects proposed inside the study area include the Weissberg project, on South Columbia Pike, and the Camden project, on Rock Springs Avenue, in addition to the current expansion of the Goodwin House. There are two significant parcels of vacant property in the study area, one is owned by Fairfax County and located on South Columbia Pike, and one is located within the Weissberg property on South Columbia Pike. Underutilized parcels in the study area include the covered, service parking lot on South Columbia Pike; the brick office building south of the Acura

dealership on South Columbia Pike; large lots within the auto-repair service district along Center Lane and Seminary Road; the two industrial office buildings on the south side of Seminary Road and west of Carlin Springs Road; the commercial shopping centers and surface parking lots north of Leesburg Pike between Carlin Springs Road and South Jefferson Street; and the large commercial/retail development and surface parking lot northeast of the intersection of Leesburg and Columbia Pikes.

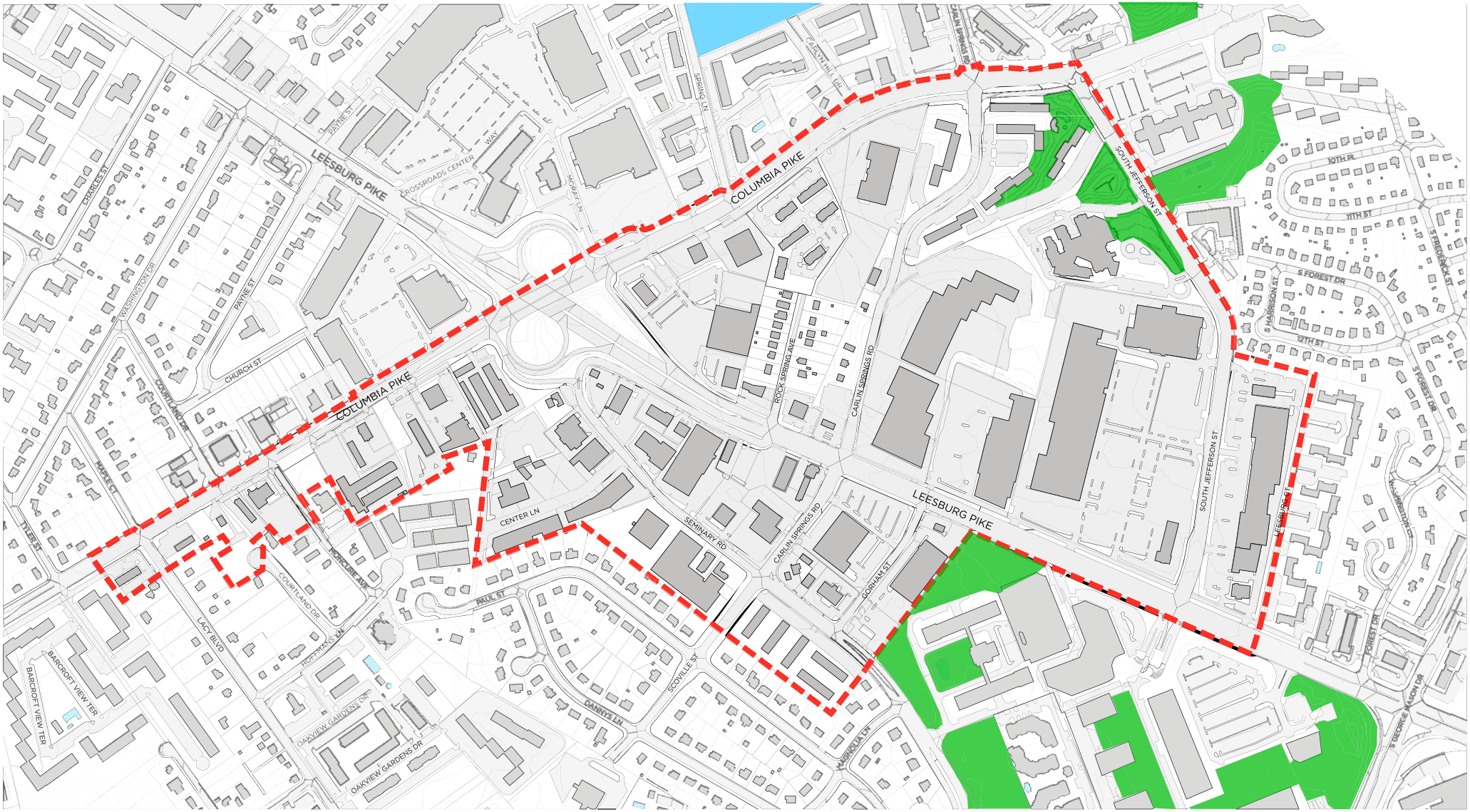
Initial Observations

Preliminary Issues

The nature of Baileys Crossroads is predominantly suburban, with major focus on both commercial and light industrial land uses. The East Quadrant has an identifiable place as the regional- and neighborhood-serving commercial center of Fairfax County and surrounding jurisdictions, but the pattern of land use is generally indistinguishable from other areas of suburban commercial sprawl in the region. Land use and building placement in both quadrants is oriented toward customers traveling in their cars along Leesburg Pike and Columbia Pike; the area offers very few accommodations for pedestrians. To accommodate customers traveling in their cars, commercial land uses in the East Quadrant provide large surface parking lots. Unfortunately, these sizeable lots separate commercial uses and make them difficult to access on foot. Additionally, there is no safe or pleasant pedestrian access from the surrounding residential communities to these land uses.

Another key issue that impacts land use in Baileys Crossroads is the frequency with which commercial and light industrial land uses in the South and East Quadrants share 'edges' with surrounding residential communities without the benefit of appropriate transitional areas. Business activity associated with commercial and light industrial land uses in both quadrants can involve noise, increased cut-through traffic on residential streets, bright lighting and other impacts that affect surrounding residential areas. The combination of these impacts directly affects the appearance of, and perception of safety in, these surrounding residential communities. Residential communities that currently share 'edges' with these land uses are not properly buffered with scaled-down development to mitigate these impacts but are, instead often separated by chain-link fences, gravel driveways, or asphalt paving, which do little to mitigate noise, light and vehicular impacts. The absence of proper transitional space between residential communities and commercial and light industrial uses in both quadrants negatively impacts both uses and should be addressed in the current study.

Finally, the South and East Quadrants lack a sufficient amount open space and other green areas. The few available vacant lots in the study area are currently planned for multi-family development, leaving the area with a significant lack of community open space opportunities (Figure 3 – Open Space).



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3. Open Space

- Project Limits
- Existing Structures
- Existing Pavement
- Public Landscaped Open Space
- Private Landscaped Open Space

Preliminary Opportunities

The South and East Quadrants would benefit from a more efficient and balanced land use development pattern that accommodates nearby pedestrian patrons seeking neighborhood-serving commodities, as well as customers who may drive from outside the area in need of regional-serving commodities. The potential for dense, consolidated mixed-use development would maximize available land and decrease reliance on vehicular transportation. Potential mixed-use development in the South and East Quadrants could include:

- Commerce Mixed-Use - Vertical mixed use with ground floor commerce (retail only) continuous within the district and commercial (office) or residential uses in the upper floors.
- Residential Mixed-Use - Vertical mixed use with multifamily residential in all upper floors and areas of ground floor commercial (office or retail) use.
- Neighborhood Mixed-Use - Multi-family and row house residential with small neighborhood-scale commerce (office and retail) at key locations.
- Regional Commerce - Large floor-plate office and retail uses.

Many parcels in the East Quadrant are dominated by large surface parking lots that waste viable, developable land in prime locations in the CBC. Parcels with wasted viable space are generally located north of East Leesburg Pike and east of North Columbia Pike, extending to South Jefferson Drive and contain large floor-plate buildings and large, asphalt parking lots. Additionally, auto-oriented uses in the South Quadrant along Seminary Road, between South Columbia Pike and Scoville Street, contain older, run-down buildings that could be re-used and renovated. The potential for consolidated ownership of these parcels, their proximity to the potential streetcar alignment, proximity to major thoroughfares in the area, and proximity to surrounding, stable residential communities makes these parcels logical, potential mixed-use destinations.

A more defined land use pattern can also more effectively separate adjoining land uses that may be adversely impacted by businesses associated with neighboring uses, such as the auto service businesses in the South Quadrant that adjoin townhouses along Paul Street. Placing the auto-oriented land uses away from the townhouses, or substantially buffering the adjoining edges with transitional areas, would enhance both the pedestrian experience and physical appearance of the townhouse community. Creating appropriate transitional areas between conflicting land uses, like commercial and single-family residential development, would help preserve existing communities and provide safer, more desirable and more attractive living environments for residents.

Preliminary Constraints

Baileys Crossroads is ninety percent developed, offering minimal available land for new development. Hence, much of the area's future growth will be by redevelopment of existing built parcels. However, there are many parcels in the study area that are individually-owned and may be challenging to consolidate for redevelopment. It also

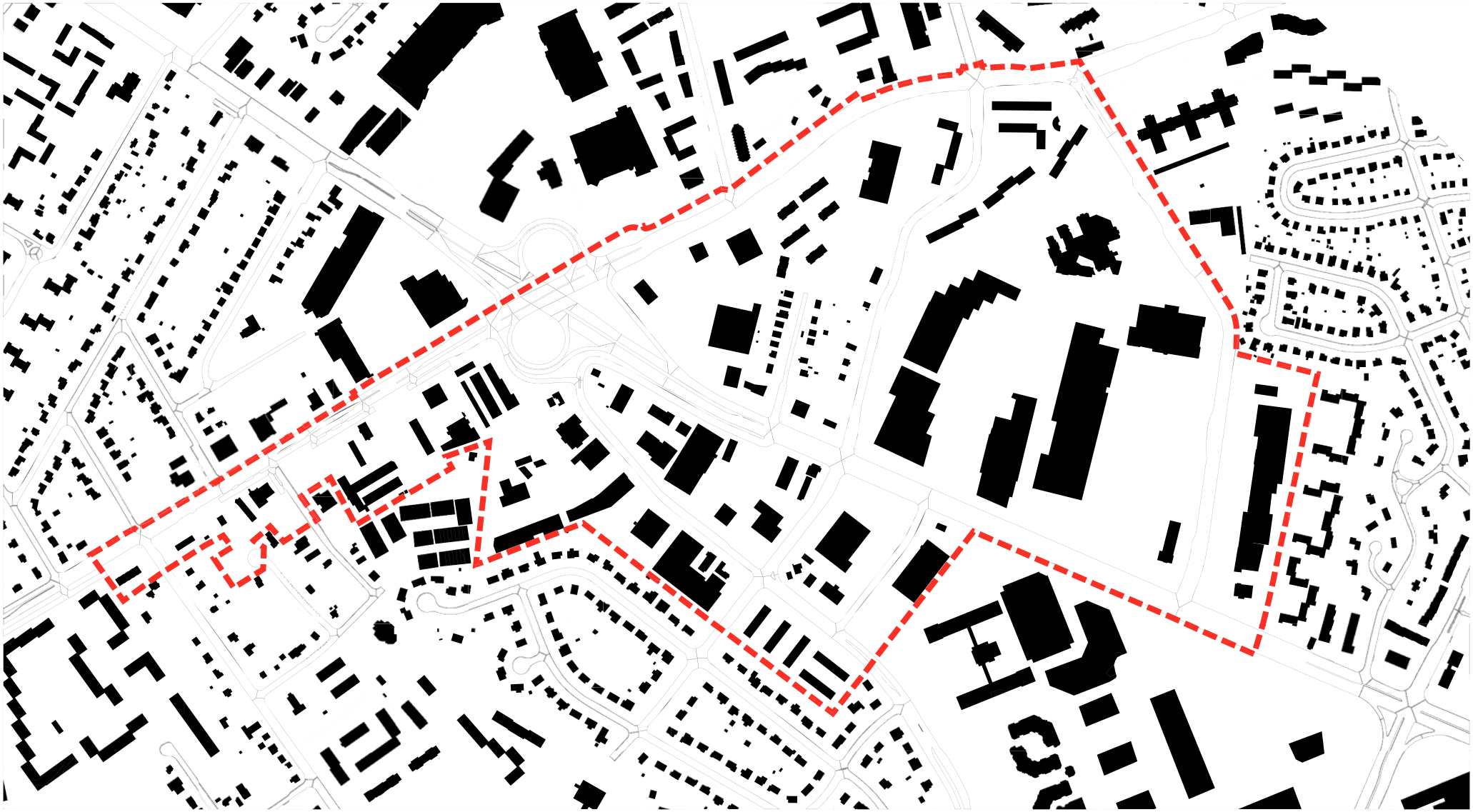
may be challenging to maintain the vitality of local businesses while trying to attract national corporate investment through revitalization. Additionally, some business owners have been reluctant to maintain their properties and to provide costly structural improvements needed to upgrade their properties.

II. URBAN DESIGN

Existing Conditions

The architectural character of development in the East Quadrant can be classified as generic, suburban commercial from the 1970s to present day. One-story, concrete strip malls of consolidated regional retail and neighborhood commercial development are interspersed throughout expansive, asphalt surface parking lots in the East Quadrant. Portions of these strip malls incorporate large big-box stores which, on occasion, have their own trademark design to differentiate them from other suburban commercial development in the area. Most of the strip mall entrances in the East Quadrant are set back quite a distance from the road by large surface parking lots, which open onto smaller arterial roads connected to Leesburg and Columbia Pikes. Placement of these malls at such a great distance from accessible sidewalks inhibits pedestrians from conveniently and safely reaching the strip mall entrances. Additionally, the regularity of curb-cuts at numerous parking lot entrances make it very difficult for pedestrians to safely cross the parking entrances or to safely enter mall parking lots (Figure 4 – Figure-Ground Structures) and (Figure 5 – Figure-Ground Roads and Parking). Other development in the East Quadrant consists of medium-density, brick garden apartments, the relatively new, high-rise Goodwin House complex, medium-density brick office buildings and several stand-alone retail stores and restaurants. Most of these structures face Leesburg or Columbia Pikes, South Jefferson Street, or Carlin Springs Road.

The South Quadrant contains outdated and run-down structures that are generally higher in scale (one to three stories) than the predominant commercial development north of Leesburg Pike, but narrower and less deep, due to smaller parcel sizes. Many of the auto-oriented businesses along Seminary Road and Center Lane appear poorly maintained and in need of repair, with the exception of a few businesses that have undergone façade treatments to shield unattractive, industrial service structures in the rear. Paved surface parking lots in the South Quadrant are less expansive than lots in the East Quadrant and mostly consist of patchy asphalt with scattered pot holes. Furthermore, unpaved, gravel parking areas and service roads behind, and to the sides of, lots facing Seminary Road and Center Lane are frequently separated from adjoining residential communities by fences instead of buffered transitional areas. The architectural character of development in other areas of the South Quadrant, past Moncure Avenue along South Columbia Pike, of more recent vintage is generally recent and in fair condition, but development north of Moncure Avenue is fairly old and in need of redevelopment. The parcels along South Columbia Pike, which tend to be larger lots, could be more efficiently utilized if consolidated and redeveloped (Figure 6 – Site Plan Typologies).



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4. Figure Ground - Structure

Project Limits
Roads
Structures

Baileys Crossroads Study

5. Figure Ground - Road & Parking

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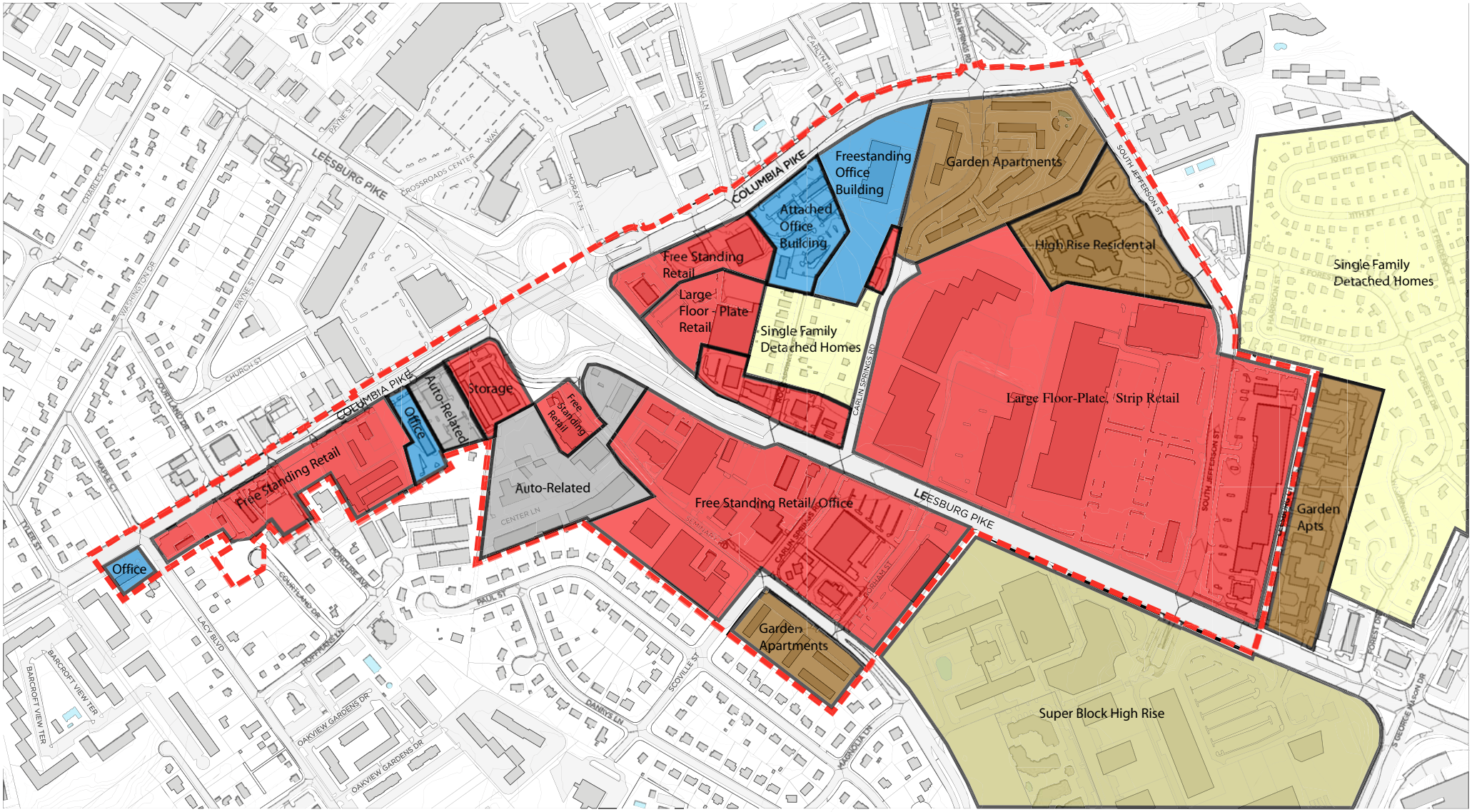
Project Limits
Roads & Parking
Structures



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6. Site Plan Typologies

- Project Limits
- Existing Structures
- Existing Pavement
- Retail
- Single Family Residential
- Office
- Auto Related Business
- Super Block
- Multifamily Residential

Initial Observations

Preliminary Issues

Architectural Character

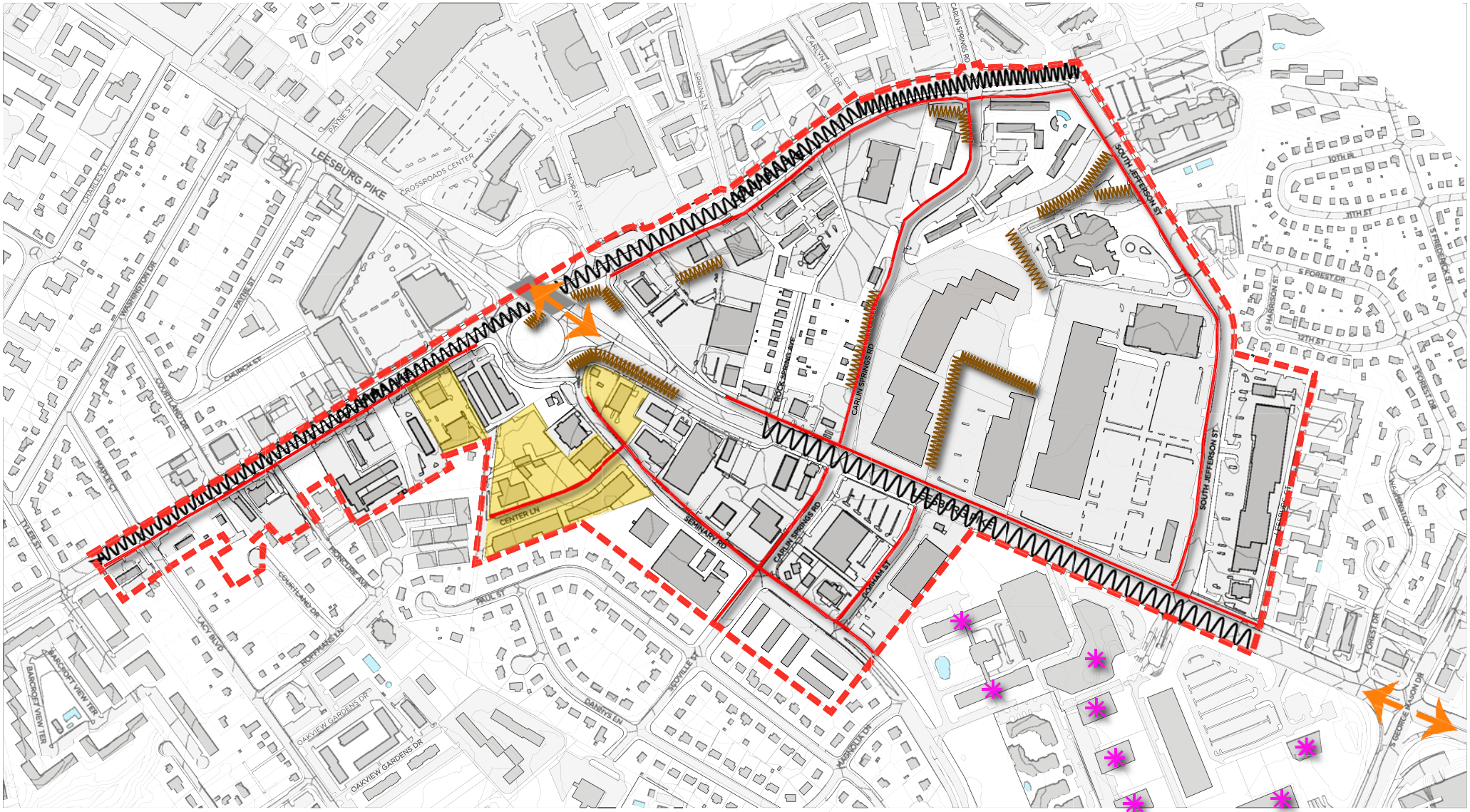
The architectural character of development in both quadrants does not provide either visual focus or visual interest, which is made worse by the poor placement of buildings facing service entries, dumpsters and parking areas. An example of poor building orientation in the East Quadrant can be found at the Goodwin House, where the south face of the building looks onto the back alley, dumpsters, and loading docks of the Leesburg Pike Plaza Shopping Center. The new construction at this development may however, serve to block this "rear view: of the shopping center from the Goodwin House site. An example of poor building orientation in the South Quadrant can be found along Seminary Road and Center Lane, where auto-body repair shops have cars parked on side and rear lots that share edges with adjacent residential development (Figure 7 – Visual Character).

Streetscape as Urban Design

The lack of pedestrian accessibility is directly affected by the absence of sidewalks in both the South and East Quadrants. Additionally, the extensive network and placement of above-ground power lines limits the amount of space pedestrians need to walk at a safe distance from vehicular traffic, and drastically affects the landscape aesthetically. Furthermore, the lack of landscaped surfaces, including both ground vegetation and tree cover, exaggerates the impact and dominance of the area's paved, hard surfaces. Moreover, deficient streetscape treatments such as sidewalk setbacks, street lighting, shrubs, benches and proper bus stop shelters along East Leesburg Pike, South Columbia Pike, Seminary Road, Carlin Springs Road, and South Jefferson Street make these access ways appear unsafe and unattractive, which further discourages pedestrian activity.

Circulation

Circulation in both the South and East Quadrants is disconnected and lacks a grid network to provide access between commercial and residential districts. The existing road network also isolates large-scale commercial development from the surrounding residential communities. Leesburg Pike and Columbia Pike provide access between the South and East Quadrants, Fairfax County, Arlington County, the City of Alexandria and Washington, D.C., but they do not always provide direct access to land uses in both quadrants. The smaller, arterial connections provided by Seminary Road, Carlin Springs Road, and South Jefferson Street create an inner circulation network to destinations in both quadrants, and influence parcel size allocation. The alignment of Seminary Road in close proximity to Leesburg Pike in the South Quadrant provides a very limited amount of developed parcels. Therefore, this area contains denser and more consolidated development than developable areas in the East Quadrant. The alignments of South Jefferson Street and Carlin Springs Road in the East Quadrant are further from Leesburg



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7. Visual Character

- Project Limits
- Existing Structures
- Existing Pavement
- Overhead Utility Lines
- Industrial /Auto-related Zones
- High Rise Buildings
- Views
- Constructed Embankments
- Visually Chaotic Zones

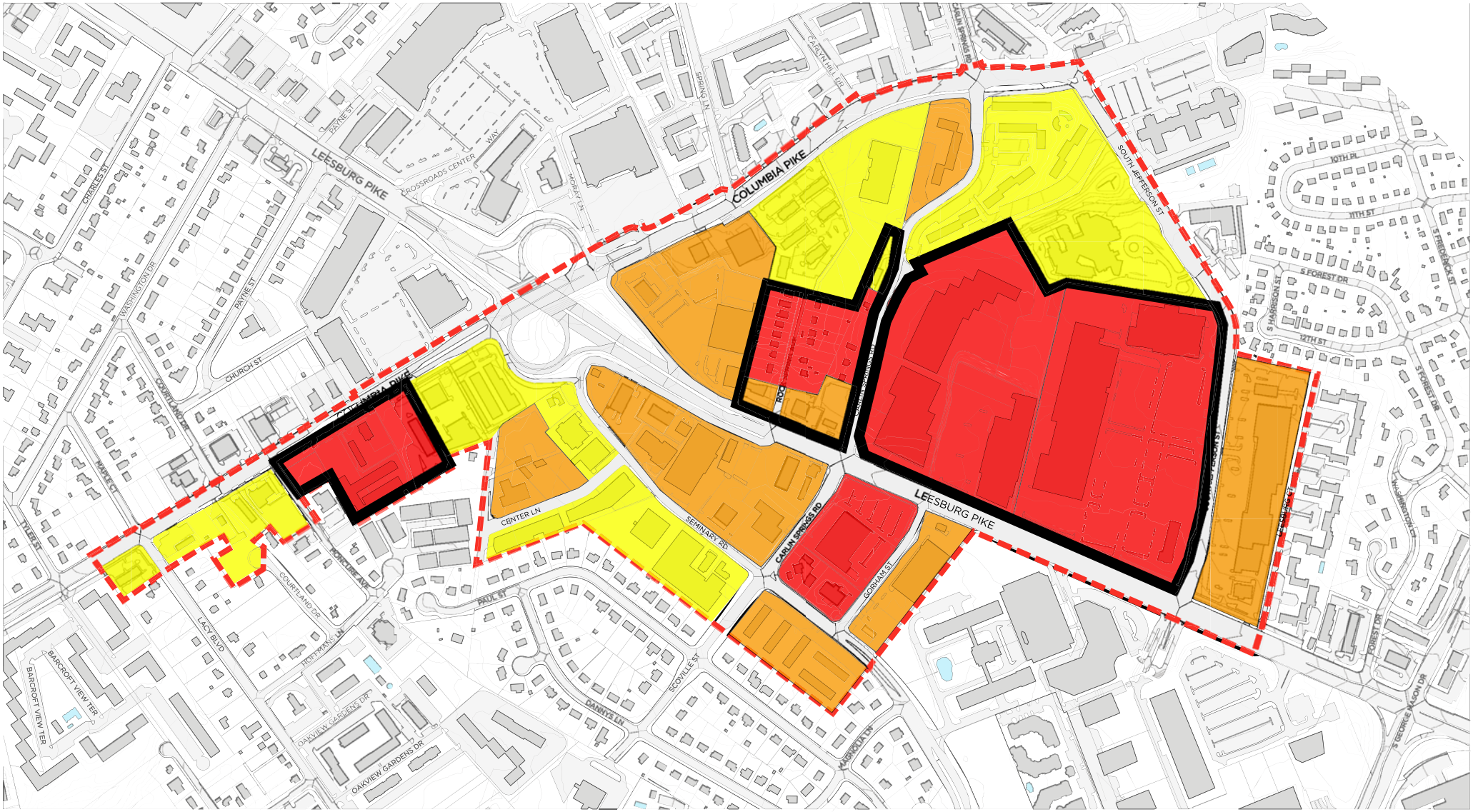
Pike and Columbia Pike, providing more land for bigger parcels that support large floor-plate commercial development.

Preliminary Opportunities

The suburban model for Baileys Crossroads, has, over time, encouraged the outward "sprawl" of development; however, transformation of the area to an urban model will encourage a more efficient development pattern. Urban redevelopment can provide commercial, retail, office and residential mixed uses at higher densities, with the potential for development to be centered at streetcar stations along the Pike Transit Initiative alignment. The potential for additional streetcar stations to be located in the South and East Quadrants could provide opportunities for multiple transit node developments in Baileys Crossroads. Furthermore, the opportunity to connect the transit node developments, especially to Skyline, would ensure a fluid transition to development at each station along the streetcar line. The relatively intense development around streetcar stations could transition to medium-density townhouses and low-density single-family housing to preserve the surrounding residential framework. Creating a network of pedestrian and bike connections between potential mixed-use, transit-oriented nodes and the surrounding residential districts will ensure success of this framework.

The classification of parcels in Figure 8 – Development and Redevelopment Potential, as having high, medium and low redevelopment potential was gathered from field observations and site assessment of development in the South and East Quadrants. Considerations included were the sizes of parcels, their location in the study area, the age and condition of existing structures, the potential ease of consolidating parcels in relation to ownership patterns, the current land use pattern and surrounding land use patterns, topographic constraints, and the amount of paved versus built surface. The areas indicated as having "high" development potential typically have large lots, one owner or consolidated ownership, an approved plan or proposal for development, little-to-no topographic constraints, a good location in proximity to Leesburg and/or Columbia Pike, older or replaceable development, underutilized space (usually surface parking lots) and a potential location near the Pike Transit Alternative alignment. Areas indicated as having "medium" development potential might have some or a few of the traits mentioned above, or are parcels with the potential to have these traits in the future. Areas indicated as having "low" development potential typically have viable buildings or structures, would need large amounts of consolidation to provide viable space for development, have topographic constraints, or have minimal paved or underutilized space.

Large areas of consolidated parcel ownership will provide prime locations for redevelopment. These parcels, identified in Figure – 9 Assembled Parcels, show that there are many areas in both the South and East Quadrants that are currently large, contiguous lots owned by a single entity. Large, consolidated lots in the East Quadrant include much of the Leesburg Plaza Shopping Center; the REI commercial strip; the multifamily-residential complex at the northern edge of the quadrant; and the corner lots at the southwestern edge of the East Quadrant, near the intersections of Columbia and Leesburg Pikes. Large areas of consolidated parcel ownership in the South Quadrant



Baileys Crossroads Study

Fairfax County, Virginia

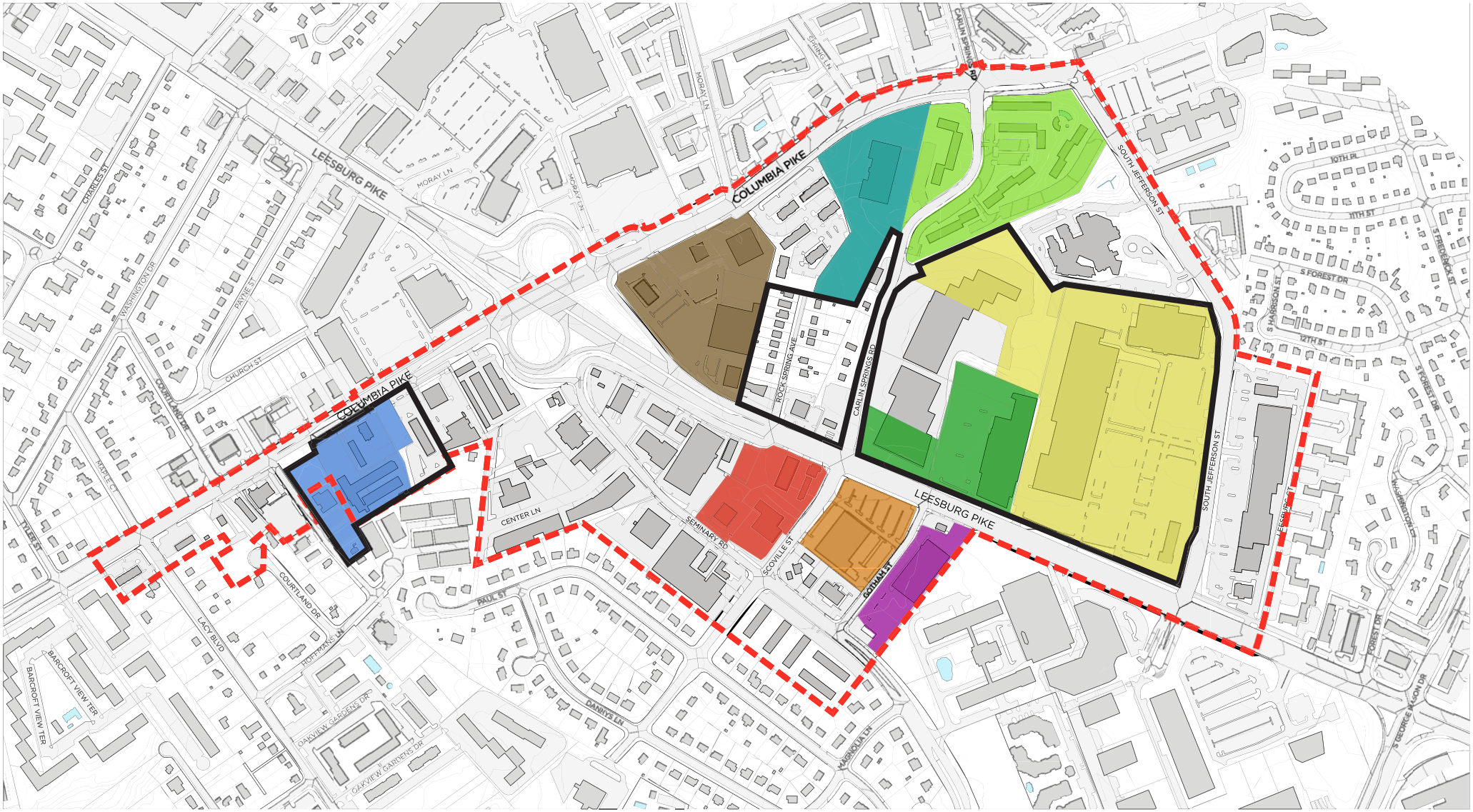
Rummel, Klepper & Kahl
Rhodeside & Harwell
Wendel Duchscherer
Basil Bauman Prost & Cole
Ferrell Madden Lewis

North

0’ 100’ 500’
50’ 200’

8. Development/ Redevelopment Potential

- Project Limits
- Existing Structures
- Existing Pavement
- High
- Medium
- Low
- Approved & Deferred APR Nominations



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9. Assembled Parcels

Project Limits
Existing Structures
Existing Pavement

9 lots
6 lots
2 lots
3 lots
6 lots
3 lots
2 lots
3 lots
2 lots

Approved or Deferred APR Nominations

include most of the commercial development east of Gotham Street; the large parcel between Scoville Street and Gotham Street; the commercial/retail development bound by Scoville Street to the east and Seminary Road to the south; and the Weissberg property on South Columbia Pike.

Opportunities for historic continuity rely on the preservation of unique, older buildings in the South Quadrant, such as the old airplane hanger along Center Lane, and the retention of WWII-era, single-family residential communities that surround the Baileys Crossroads CBC. Another opportunity for historic continuity may be achieved through tying in the historic District of Columbia survey marker to the design of potential future gateway markers in Baileys Crossroads. According to the 2007 edition *Fairfax County Comprehensive Plan; Baileys Planning District*, there is also the potential for significant heritage resources associated with Lincoln's Grand Review of the Army of the Potomac, which took place in the Baileys Planning District, and with the Zoological Institute, which later became Baileys Circus and ultimately, Ringling Brothers, Barnum and Baileys Circus, located along the Leesburg Pike corridor in the Baileys Crossroads area (Figure 10 – Historic Resources).

Preliminary Constraints

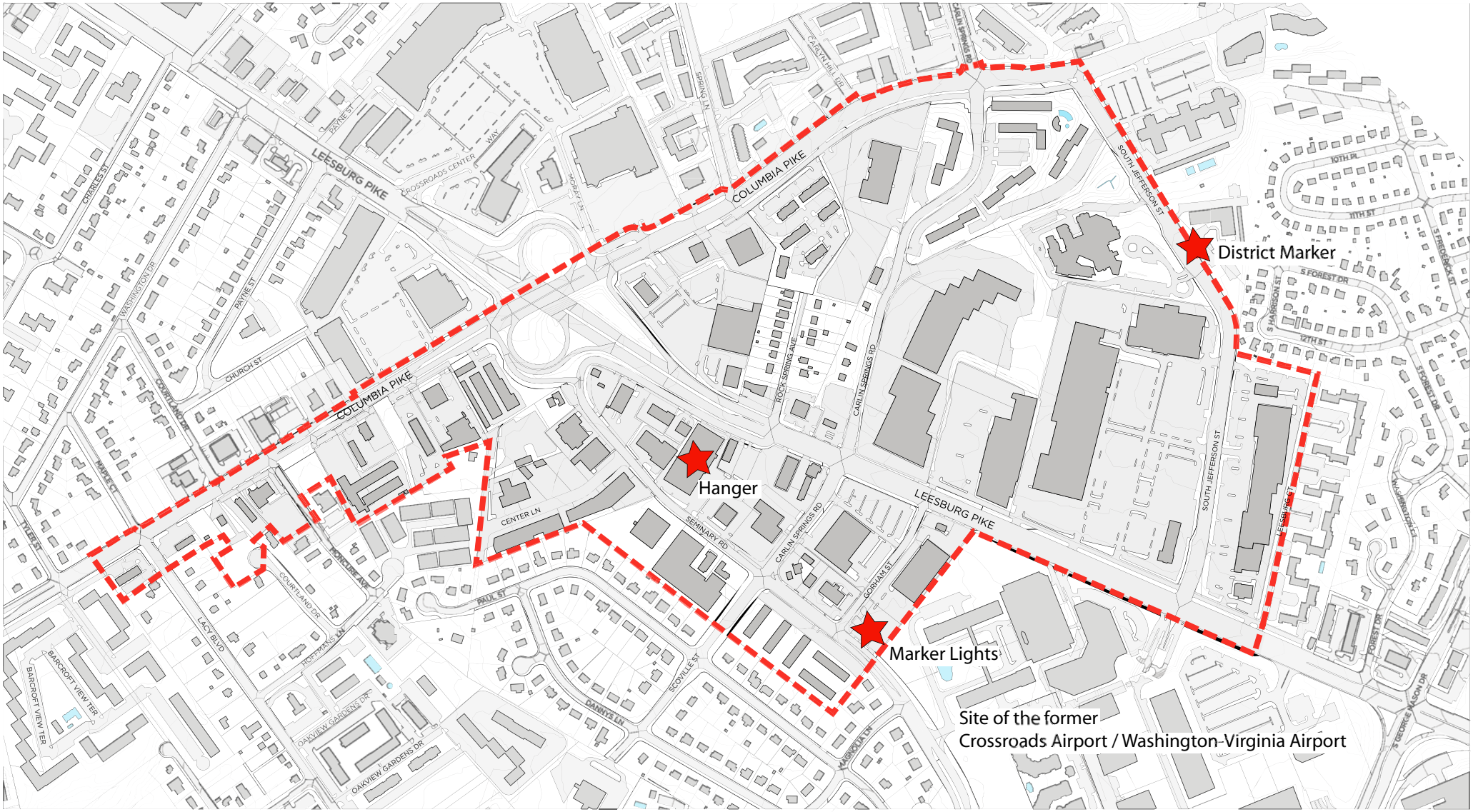
The South and East Quadrants will be unable to provide the framework needed for denser, urban development without consolidating many individually-owned parcels, without identifying the potential for mass transit, and without expanding vehicular and pedestrian connections. Additionally, the change in topography in both the South and East Quadrants could challenge redevelopment in some sections of the study area.

III. ENVIRONMENTAL RESOURCES

Existing Conditions

Steep slopes in the area are located east of the Columbia Pike/Leesburg Pike interchange, toward Seminary Road and the north side of Leesburg Pike; east of Columbia Pike north, just beyond the interchange; along the west side of Carlin Springs Road, north of Leesburg Pike and site to four single-family homes; below the multi-family residential units at the corner of Columbia Pike and South Jefferson Street; and along the service parking and delivery entrance behind the REI commercial center. Moderate slopes in the area are located around the Goodwin House, behind the nursing school in the Carlin Springs Road commercial complex, and below the office units along Columbia Pike north (Figure 11 – Environmental Resources).

The predominant clay-rich Beltsville soil and Alluvial soil in the study area are hydrologic class D and have low infiltration rates, meaning the soil does not percolate well and may not be able to handle increases in stormwater runoff. Some Sassafras soils in the southwest corner of the study area are good candidates for infiltration measures to help alleviate stormwater runoff issues.



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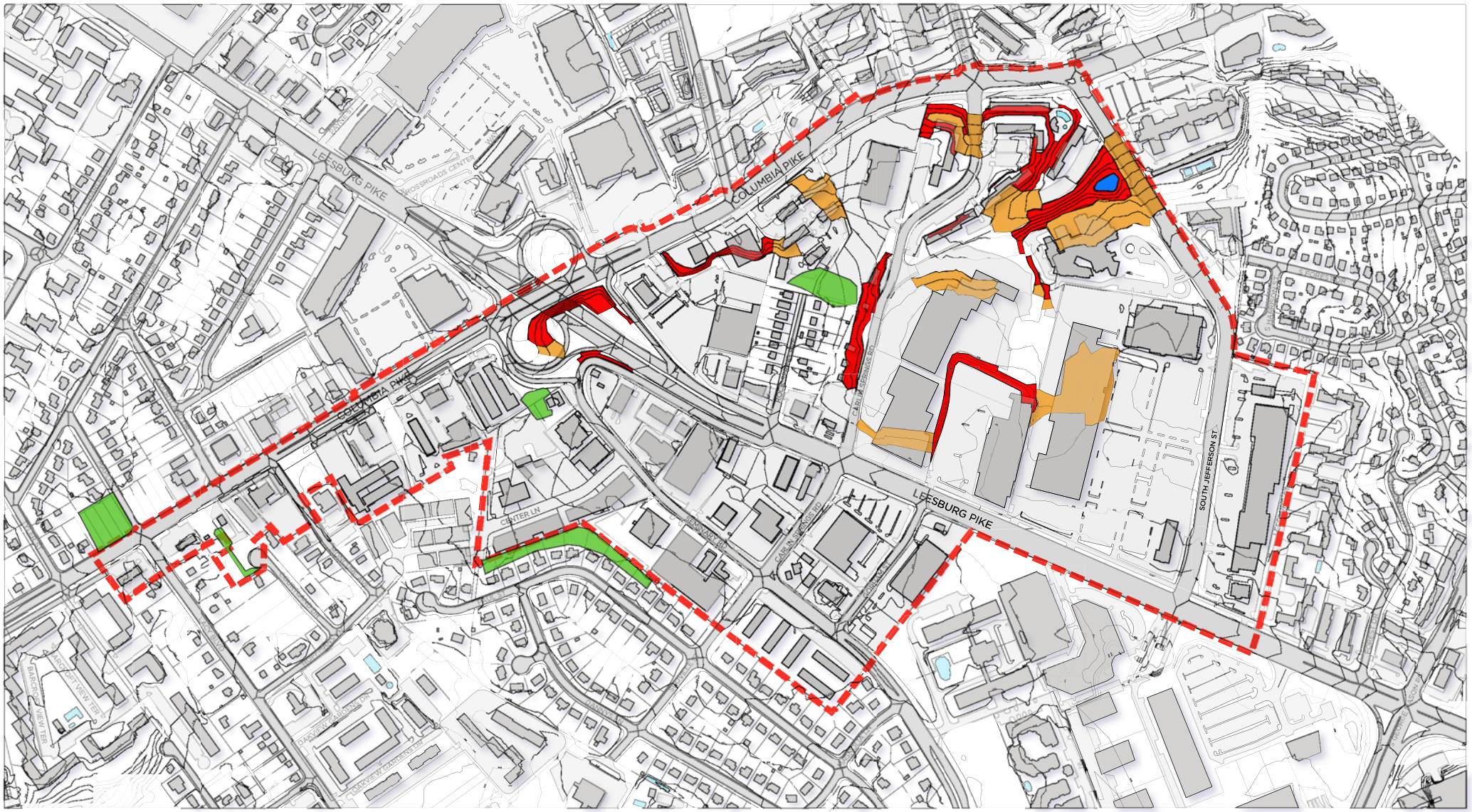
Project Limits
Existing Structures
Existing Pavement

10. Historic Resources

Historic Resource



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50’ 200’

11. Environmental Resources

- Project Limits
- Existing Structures
- Existing Pavement
- Surface Water
- Stormwater Ponds
- Contours (5’ intervals)
- Steep Slopes - (25% +)
- Moderate Slopes - (15%- 24.99%)
- Tree Cover

Initial Observations

Preliminary Issues

The existing soils will need to be modified if infiltration is designed into the landscape to accommodate stormwater drainage. Stormwater on the less pervious soils in the area could still be treated with methods that can filter and reduce the velocity of stormwater flows.

Preliminary Opportunities

The potential for more development in the South and East Quadrants could place an increased burden on storm sewer infrastructure. The impacts of this burden could be less severe if impervious surface in the study area is reduced and managed properly, and if development is intensified around transit hubs.

Other opportunities for stormwater management include application of porous paving, green roofs, and the installation of raingardens in private courtyards and streetscape systems. Appropriate stormwater management for urban areas should be contained underground in order to maximize developable land and open space opportunities above ground.

Preliminary Constraints

Physical constraints to potential new development, redevelopment and the alignment of the Pike Transit Initiative include steep and moderate slopes. Additionally, the lack of open spaces and landscaped areas in the South and East Quadrants needed to absorb rainwater and surface water adversely impacts proper stormwater management.

IV. TRANSPORTATION

Existing Conditions - Traffic

Major corridors through the Baileys Crossroads area are Leesburg Pike (Route 7 connecting Alexandria and I-395 in the east to Seven Corners and Falls Church in the west) and Columbia Pike (Route 244, connecting Pentagon City in the north to Annandale in the south). The secondary roads are Seminary Road (connecting I-395 to the east), Carlin Springs Road (Route 716, connecting Ballston to the north), South Jefferson Street (connecting Columbia Pike to Leesburg Pike) and Lacy Boulevard/Magnolia Lane (connecting Columbia Pike to Skyline),

Windshield surveys were conducted in the project area during AM, midday and PM peak periods on a weekday and also during the midday peak period on a weekend day to observe the traffic patterns, pedestrian behavior, and bus stop patronage. During AM and PM peak hours, through-traffic (i.e., vehicles travelling along Route 7 or Route 244

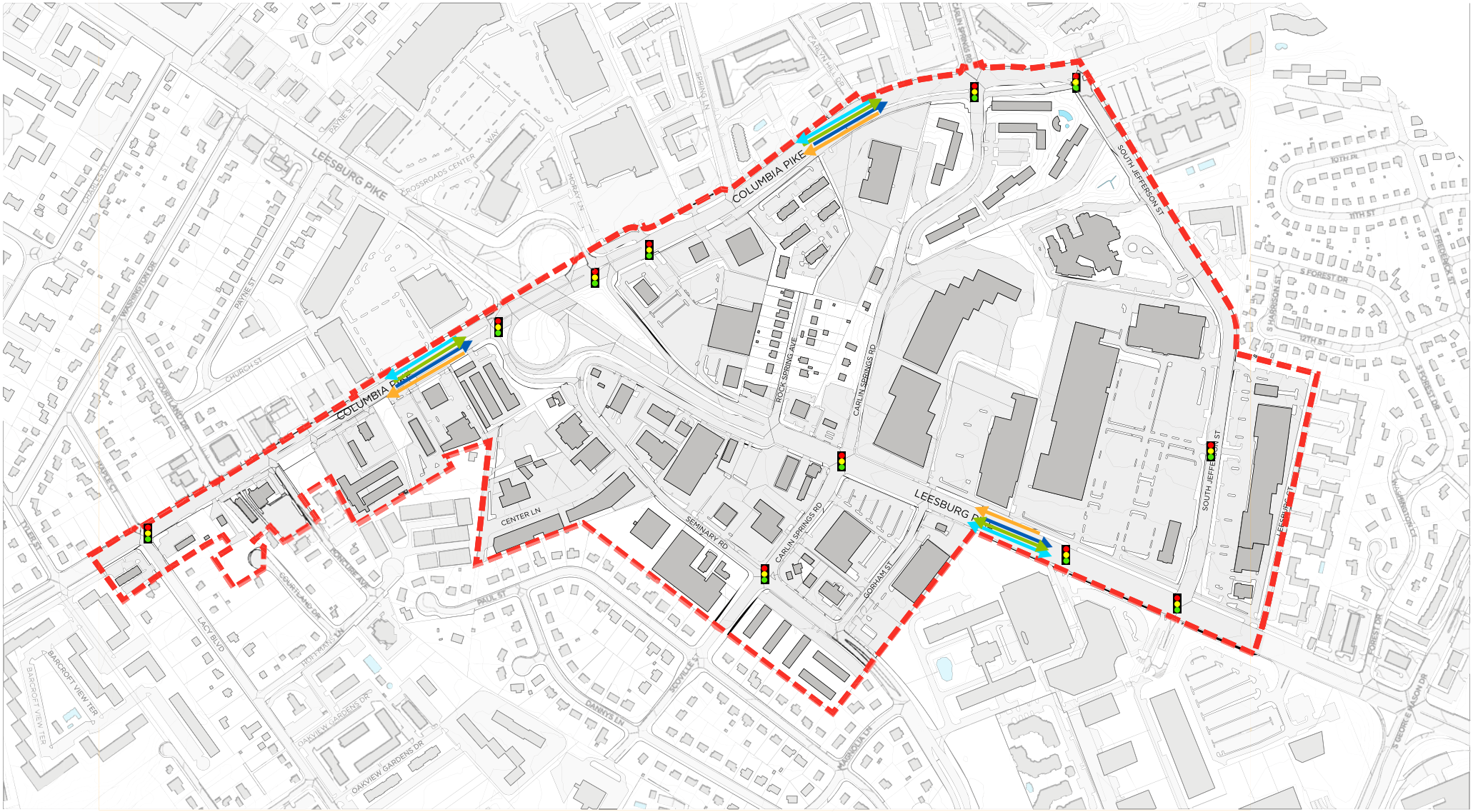
through the project area without turning left or right onto cross streets) was observed moving at free-flow speeds along each corridor. This means traffic signal progression was good, resulting in minimal stoppages between intersections and allowing most vehicles to travel along each corridor at or slightly above the posted speed limit without encountering a red signal or residual queues. In the study area, the peak travel direction during the AM peak period is eastbound along Leesburg Pike, and northbound along Columbia Pike. During the midday peak period on a weekday, the peak travel direction was also northbound along Columbia Pike, but traffic volumes were relatively equal in each direction along Leesburg Pike. The PM peak traffic within the study area was observed to be dominant in the westbound direction along Leesburg Pike and in the southbound direction along Columbia Pike. During the PM peak period, the number of vehicles turning into and out of commercial developments along both of these corridors was observed to be significantly higher than during the AM and midday peak periods (Figure 12 – Traffic Flows).

During the weekend midday peak period, due to the many shopping destinations at Baileys Crossroads, the traffic was observed to be heavy in both directions along Leesburg Pike within the project limits with no clearly dominant direction. However, the peak travel direction for Columbia Pike was southbound, with congestion evident in both directions between Carlin Springs Road and South Jefferson Street.

Although non-turning (through) vehicles were rarely delayed due to good signal progression, there was significant queuing of turning vehicles observed at a few locations during the windshield surveys. During the AM peak period, the northbound left-turning vehicles at the intersection of Columbia Pike and Carlin Springs Road formed long queues that extended into the adjacent through lane. During the PM peak hour, left-turning vehicles at the intersection of Leesburg Pike and South Jefferson Street also formed long queues.

Bus ridership was estimated using the number of people observed waiting at stops, not the actual number of people riding the buses through the study area. Bus ridership along Columbia Pike (Route 16) appeared higher than along Leesburg Pike (Routes 16, 28, & 25) during the AM and PM peak periods. The two bus stops in the northbound and southbound directions at the intersection of Columbia Pike and Lacy Boulevard were the busiest in the morning, and the bus stop at the intersection of Columbia Pike and Carlin Springs Road was observed to be the busiest during the PM peak hours. During the midday weekday peak period, bus ridership appeared higher along Leesburg Pike than along Columbia Pike. Bus ridership appeared to be lower throughout the Baileys Crossroads area during the weekend midday peak period.

Significant pedestrian activity was observed during peak hours along both study corridors. Most pedestrians observed during the morning were commuters and those waiting for buses. Pedestrians during the weekday midday peak period mostly consisted of women with children in strollers. More shoppers were in evidence during the afternoon, congregating around retail centers. Midday pedestrian activity was especially heavy at the intersection of South Jefferson Street and Leesburg Pike, which was



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0’ 100’ 500’
50’ 200’

12. Traffic Flows

- Project Limits
- Existing Structures
- Existing Pavement
- AM Peak Direction
- PM Peak Direction
- Contours (5’ intervals)
- Midday Direction
- Weekend Direction
- Signal Intersection

potentially a result of lunchtime trips from offices in Skyline to restaurants on either side of South Jefferson Street. Pedestrian activity was noticeably lower during the weekend observations; however, activity may have been affected by inclement weather (intermittent rain showers) on those days.

Throughout the area, street pavement markings appeared to be in good condition based on visual inspection, except at the intersection of Leesburg Pike at Carlin Springs Road, where the pedestrian crosswalk was faded and worn. All signalized intersections have pedestrian phases to complement the existing crosswalks. The exact "Walk" and "Don't Walk" times are included in the Synchro reports in the Appendix.

Baileys Crossroads attracts workers from around the region who often commute from the immediate Washington, D.C. metropolitan area and beyond (Census Longitudinal Employer Dynamics 2007). Approximately nineteen percent of commuters to Baileys Crossroads travel from locations beyond the D.C. Metro region (which includes 10 counties), and 41 percent of commuters live within Fairfax County. Many of the commuters from Fairfax County travel from locations along I-395 or Route 7. Commuting to work is more localized for people living in Baileys Crossroads, as 90 percent of these people work in Fairfax County and nearly all of the remaining 10 percent have jobs located in greater Northern Virginia. Major employment centers for residents in Baileys Crossroads include Baileys Crossroads, Tysons Corner, Merrifield, and the Arlington transit corridor. These statistics are for Baileys Crossroads as a whole, but are reflected in the study area's residential and commercial land uses.

Intersection Capacity Analyses

Eighteen (18) signalized intersections in and around the study area were analyzed to determine their existing intersection levels of service (LOS) during peak travel periods. The traffic software Synchro version 7.0, which is based on the principles of Highway Capacity Manual (HCM), was used to analyze these intersections. The vehicle count data for the 18 intersections was seasonally adjusted using factors provided by the Metropolitan Washington Council of Governments (MWCOG) and are shown in the Appendix (Figure 13a – Expanded Traffic Volumes).

Two (2) arterial roadway network data files provided by Fairfax County were used to analyze traffic operations during the weekday AM and PM peak hours. One network included all of the intersections in the study area except for three intersections along Columbia Pike. The other network data file contains those three (3) intersections along Columbia Pike. The signal timing plans and phasing information were kept unaltered. However, the roadway network and lane configurations were modified slightly to reflect the existing conditions. The modifications made to the Synchro network files are presented below:

- Added missing ramp from EB Rte 7 to NB Rte 244 (node 18)
- Added missing ramp from SB Rte 244 to WB Rte 7 at (node 45)
- Added missing ramp from WB Rte 7 to SB Rte 244 at (node 17)

- Added missing ramp from WB Rte 7 to NB Rte 244 at (node 80)
- Added acceleration lane along EB Rte 7 at the on-ramp from Rte 244
- Corrected the lane alignment and configuration along EB and WB Rte 7 between the Rte 244 interchange and the Crossroads Shopping Center intersection
- Corrected the traffic control at the end of the ramp from WB Rte 7 to NB Rte 244
- Corrected the lane configuration at the intersection of Seminary Road & George Mason Drive for the Build America approach.
- Corrected the lane configuration at the intersection of Jefferson Street & Leesburg Pike Plaza for the westbound approach.

In addition to the above edits to the Synchro network, a few discrepancies were found and corrected in the 2008 existing turning movement counts provided by the County, are shown below:

- At the intersection of Leesburg Pike and S. Jefferson Street, the traffic volumes were shown along the northbound through movement and eastbound left-turn movements which are not allowed according to the intersection lane configuration. It was assumed these vehicles were making illegal movements. Ideally, these vehicles would travel east (past the intersection of Columbia Pike at S. Jefferson Street) and make a left-turn at Windsor Towers. So, in order to perform the intersection capacity analysis, the eastbound left-turns were added to eastbound through vehicles and the northbound through vehicles were added to northbound right turning vehicles. In addition, the turning movement counts were analyzed as is (including the illegal movements) to represent the actual existing operating conditions. However, the lane configuration was changed to accommodate the so called illegal turns. The illegal movements mentioned above could be reduced by improving the signage at the intersection.

- At the intersection of Leesburg Pike and Charles Street / Glen Forest Drive, the traffic counts show there are through movements along northbound (5 vehicles during AM peak hour) and southbound (2 and 6 vehicles during AM and PM peak hour, respectively) approaches which is not possible. It was assumed that the counters must have treated the northbound right turning vehicles that immediately turned left onto Glen Forest Drive as northbound through movements. Similarly, it was assumed that the vehicles turning right from Glen forest Drive and immediately turning left onto Charles Street were considered through movements. The volumes were corrected before performing the intersection capacity analysis. Also, the traffic volumes show some westbound left-turn vehicles which contradict the lane configuration in the Synchro network. It is a possibility that these left-turns were illegal movements which could be reduced by improving the signage and by providing a raised median at the intersection.

For this study, the weekday AM and PM peak hours were assumed to be from 7:30 to 8:30 AM and 5:00 to 6:00 PM across the entire area, based on the traffic volumes at the majority of the intersections.

The peak hour volumes were balanced along Columbia Pike in the second study network since the intersections are in close proximity to each other and there are no mid-block access points between them. Also, the volumes along Leesburg Pike around the Columbia Pike interchange were balanced based on the through volumes from the adjacent intersections. Traffic volumes at all other intersections in the study network were unaltered.

The existing turning movement volumes used for the intersection analyses are presented in Table 1 – 2008 Existing Peak Hour Volumes, and the results of these analyses are summarized in Table 2 – 2008 Existing Intersection Capacity Analyses (Synchro Results). The levels of service (LOS) for each intersection during both AM and PM peak hours are presented in Figure 13 – 2008 Traffic Volumes. Under the existing conditions, all intersections appeared to be operating at acceptable levels of service (typically considered as LOS D or better), with the exception of the following one (1) intersection:

- *S. George Mason Drive and Skyline Center: LOS F during the PM peak hour.* The minor street (Skyline Center) experiences long delays along both northbound and southbound approaches due to the existing lane configuration. Acceptable levels of service (LOS D or better) can be achieved for all approaches by re-configuring the existing lanes from one shared Left/Through and one exclusive Right-turn lane to one exclusive Left-turn lane and one shared Through/Right lane.

Additionally, the following intersections were found to be functioning at LOS E or LOS F on one or more approaches. The intersections will function at better levels of service with a few relatively minor improvements such as optimizing signal timing and/or changing lane configuration.

- *Leesburg Pike and Glen Carlyn Rd – LOS E along SB during the AM peak hour, LOS E on the SB and NB approaches during the PM peak hour*: The minor street (Glen Carlyn Road) experiences long delays due to shorter green time on both northbound and southbound approaches. Optimizing the signal timings will help the intersection operate at better levels of service.

- *Leesburg Pike and Glen Forest Drive – LOS E on the SB approach during the AM and PM peak hours*: The minor street (Glen Forest Drive) experiences long delays due to shorter green time along southbound approach. By providing a permissive overflow for southbound right-turns and optimizing the signal timings will help the intersection operate at better levels of service.

- *Leesburg Pike and Baileys Shopping Center – LOS E on the SB approach during the PM peak hour*: The southbound approach experiences long delays due to shorter green time. Optimizing the signal timings will help the intersection operate at better levels of service.

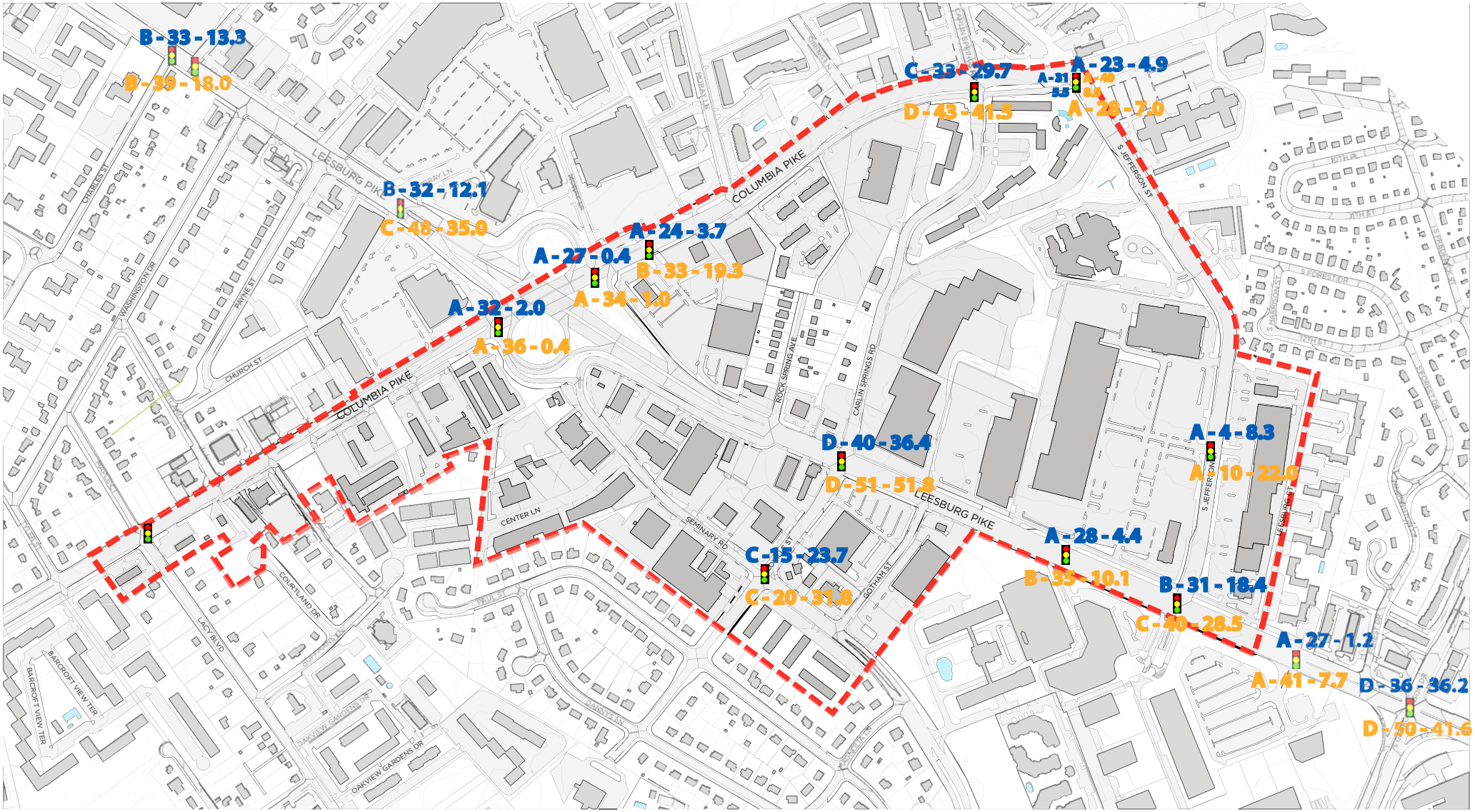
Table 1 - Existing Peak Hour Volumes (Year 2008)														
Node Number	**Intersection**	**Peak Period**	**Eastbound**			**Westbound**			**Northbound**			**Southbound**		
			Left	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**
1	Leesburg Pike & Glen Carlyn Rd	AM	11	1399	163	59	1132	36	155	57	46	148	210	11
		PM	40	1426	160	58	1459	179	262	224	93	138	121	23
2 & 22	Leesburg Pike & Charles Street / Glen Forest Drive	AM	46	1540	12	1	1480	106	17	5	30	67	2	39
		PM	32	1957	21	5	1625	77	18	0	42	80	6	32
3	Leesburg Pike & Crossroads Shopping Center	AM	18	1350	31	11	1609	43	30	5	27	20	4	38
		PM	143	1552	140	163	1661	290	91	63	183	271	70	155
4	Leesburg Pike & Carlin Springs Road	AM	48	1258	257	30	986	141	646	351	35	65	155	34
		PM	60	1431	344	35	1415	131	691	401	95	173	295	69
5	Leesburg Pike & Crossroads Place	AM	72	1283	65	47	1104	55	33	8	50	61	4	15
		PM	171	1288	32	29	1651	87	44	7	50	78	8	81
6	Leesburg Pike & S. Jefferson Street	AM	41	1169	258	142	1146	87	32	15	20	134	39	24
		PM	121	1323	45	71	1443	184	164	61	73	345	51	93
7	Leesburg Pike & Skyline Shopping Center	AM	0	1101	69	124	1418	0	12	0	20	0	0	0
		PM	0	1615	94	149	1919	0	141	0	167	0	0	0
8	Leesburg Pike & S. George Mason Drive	AM	121	814	239	318	1143	136	203	240	159	13	140	116
		PM	187	1231	397	171	1323	115	377	259	327	166	252	241
9	South George Mason Drive & Skyline Plaza	AM	6	1	6	41	2	191	89	467	39	46	465	197
		PM	173	1	104	37	3	80	6	737	48	174	657	11
10	South George Mason Drive & Skyline Center	AM	35	0	34	21	5	60	333	507	15	3	233	240
		PM	332	5	460	16	3	23	81	462	12	24	709	20
11	Seminary Road & South George Mason Drive	AM	632	652	7	15	240	74	8	15	7	160	17	627
		PM	653	352	5	52	820	270	93	68	27	95	66	901
12	Seminary Road & Scoville Street	AM	23	218	9	11	41	680	2	39	10	444	15	13
		PM	90	236	16	28	48	699	4	39	28	709	54	35
13	Crossroads Place & S. Jefferson Street	AM	15	4	28	18	6	5	20	94	1	1	164	28
		PM	33	23	111	139	20	26	138	160	30	23	221	37
16	Columbia Pike & Moray Lane	AM	14	1721	36	2	549	29	10	1	4	14	1	6
		PM	95	939	42	16	1636	213	66	16	24	184	27	87
17	Columbia Pike & WB Route 7	AM	0	0	140	0	0	61	214	1753	0	0	430	140
		PM	0	0	811	0	0	70	137	849	0	0	1306	209
18	Columbia Pike & EB Route 7	AM	0	0	93	0	0	147	0	1771	621	69	499	0
		PM	0	0	168	0	0	190	0	781	303	79	2036	0
3*	Columbia Pike & S. Jefferson Street	AM	1	1407	119	78	511	3	92	0	89	1	0	2
		PM	1	944	204	169	1062	0	152	8	210	0	2	5
13*	Columbia Pike & Carlin Springs Road	AM	581	1018	50	41	347	236	27	314	57	199	246	134
		PM	299	732	53	113	989	168	88	340	153	294	400	714
14*	Columbia Pike & Greenbriar Street	AM	0	0	0	76	0	55	55	1379	0	0	677	50
		PM	0	0	0	63	0	71	80	1161	0	0	1336	65

Note: *- Node numbers from the second Synchro Network

Table 2: Year 2008 Existing Intersection Capacity Analysis												
Node Number	**Intersection**	**Peak Period**	**EB**		**WB**		**NB**		**SB**		**Overall Intersection**	
			Delay (Sec)	**LOS**	**Delay (Sec)**	**LOS**	**Delay (Sec)**	**LOS**	**Delay (Sec)**	**LOS**	**Delay (Sec)**	**LOS**
1	Leesburg Pike & Glen Carlyn Rd	AM	25.3	C	9.1	A	48.9	D	63.8	E	25.4	**C**
		PM	33.6	C	15.7	B	72.5	E	58.9	E	33.4	**C**
2 & 22	Leesburg Pike & Charles Street / Glen Forest Drive	AM	1.2	A	22.0	C	-	-	64.8	E	13.3	**B**
		PM	30.0	C	3.5	A	28.1	C	-	-	18.0	**B**
3	Leesburg Pike & Crossroads Shopping Center	AM	13.0	B	9.0	A	48.4	D	39.9	D	12.1	**B**
		PM	32.7	C	27.6	C	52.3	D	62.8	E	35.0	**C**
4	Leesburg Pike & Carlin Springs Road	AM	30.6	C	18.4	B	58.1	E	66.2	E	36.4	**D**
		PM	40.0	D	30.0	C	92.1	F	67.2	E	51.8	**D**
5	Leesburg Pike & Crossroads Place	AM	0.8	A	2.1	A	37.4	D	66.9	E	4.4	**A**
		PM	7.7	A	5.5	A	37.0	D	64.0	E	10.1	**B**
6	Leesburg Pike & S. Jefferson Street	AM	15.0	B	14.1	B	55.9	E	61.9	E	18.4	**B**
		PM	22.1	C	21.3	C	56.9	E	55.8	E	28.5	**C**
7	Leesburg Pike & Skyline Shopping Center	AM	1.1	A	0.5	A	36.8	D	-	-	1.2	**A**
		PM	4.8	A	3.9	A	49.6	D	-	-	7.7	**A**
8	Leesburg Pike & S. George Mason Drive	AM	32.3	C	31.9	C	52.8	D	42.3	D	36.2	**D**
		PM	32.2	C	40.7	D	49.3	D	58.3	E	41.6	**D**
9	South George Mason Drive & Skyline Plaza	AM	21.9	C	11.1	B	9.5	A	10.0	B	10.1	**B**
		PM	26.7	C	19.9	B	22.6	C	14.6	B	19.7	**B**
10	South George Mason Drive & Skyline Center	AM	14.9	B	10.4	B	86.1	F	5.7	A	52.3	**D**
		PM	10.8	B	14.2	B	1136.0	F	95.2	F	336.2	**F**
11	Seminary Road & South George Mason Drive	AM	17.7	B	27.1	C	9.7	A	31.1	C	16.5	**B**
		PM	38.9	D	40.3	D	49.6	D	50.4	D	43.3	**D**
12	Seminary Road & Scoville Street	AM	33.8	C	12.6	B	36.4	D	34.2	C	23.7	**C**
		PM	67.1	E	20.4	C	46.7	D	26.5	C	31.8	**C**
13	Crossroads Place & S. Jefferson Street	AM	9.5	A	13.2	B	8.2	A	7.4	A	8.3	**A**
		PM	22.1	C	29.5	C	16.8	B	23.1	C	22.0	**C**
16	Columbia Pike & Moray Lane	AM	3.0	A	1.8	A	70.5	E	71.3	E	3.7	**A**
		PM	10.0	A	17.9	B	44.6	D	51.4	D	19.2	**B**
17	Columbia Pike & WB Route 7	AM	0.2	A	1.3	A	-	-	0.1	A	0.4	**A**
		PM	0.3	A	1.3	A	-	-	1.1	A	1.0	**A**
18	Columbia Pike & EB Route 7	AM	2.6	A	0.3	A	0.1	A	0.1	A	2.0	**A**
		PM	1.0	A	0.2	A	0.1	A	0.2	A	0.4	**A**
3*	Columbia Pike & S. Jefferson Street	AM	2.0	A	4.4	A	-	-	31.0	C	4.9	**A**
		PM	2.0	A	6.4	A	-	-	27.9	C	7.0	**A**
13*	Columbia Pike & Carlin Springs Road	AM	28.5	C	20.4	C	48.5	D	30.3	C	29.7	**C**
		PM	44.4	D	30.0	C	44.7	D	48.3	D	41.5	**D**
14*	Columbia Pike & Greenbriar Street	AM	1.1	A	6.3	A	50.3	D	-	-	6.0	**A**
		PM	4.6	A	10.0	A	37.9	D	-	-	8.6	**A**
Intersection Capacity Analysis with Proposed Improvements												
10	S. George Mason Drive and Skyline Center	PM	10.8	B	14.2	B	36.7	D	41.9	D	28.7	**D**
Intersection Capacity Analysis including Possible Illegal Turns												
3*	Columbia Pike and S. Jefferson Street	AM	2.6	A	4.4	A	28.7	C	31.0	C	5.5	**A**
		PM	2.5	A	6.9	A	34.3	C	27.6	C	8.5	**A**

Assumption: For the Synchro Analysis- Columbia Pike is considered to be EB and WB for some intersections.

Note: *- Node numbers from the second Synchro Network



Baileys Crossroads Study

Fairfax County, Virginia

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Ferrell Madden Lewis

North

13. 2008 Traffic Volumes

Project Limits
Existing Structures
Existing Pavement

X-X-X.X AM LOS - Peak Hour Traffic (x100) - Average Delay (sec)
Improved LOS - Traffic (x100) - Average Delay (sec)
X-X-X.X PM LOS - Peak Hour Traffic (x100) - Average Delay (sec)
Contours (5' intervals)

- *Leesburg Pike and Carlin Springs Rd- LOS E – on the NB and SB approaches during the AM peak hour; LOS F on the NB approach and LOS E on the SB approach during the PM peak hour*: The minor street experiences long delays due to shorter green time on both northbound and southbound approaches. By changing the lane configuration on the minor street, converting the exclusive right-turn lanes to a shared Through/Right lane and optimizing the signal timings will help the intersection operate at better levels of service. Additionally, the left-turn phase along the Leesburg Pike could be converted to protective-permissive phase to reduce the delays.

- *Leesburg Pike and Crossroads Place – LOS E on the SB approach during the AM and PM peak hours*: The southbound approach experiences long delays due to the existing lane configuration (one shared Left / through /Right lane). By introducing an exclusive left-turn lane and optimizing the signal timings will improve the level of service.

- *Leesburg Pike and S. Jefferson Street – LOS E on the NB and SB approaches during the AM and PM peak hours*: The minor street experiences long delays due to shorter green time along both northbound and southbound approaches. By providing a permissive overflow for right-turns and optimizing the signal timings will help the intersection serve at better levels of service. However, the delays may still prevail due to the high through volumes along Leesburg Pike.

- *Leesburg Pike and S. George Mason Drive – LOS E on the SB approach during the PM peak hour*: The southbound approach experiences long delays due to shorter green time. Optimizing the signal timings will help the intersection serve at better levels of service

- *Seminary Road and Scoville Street – LOS E on the EB approach during the PM peak hour*: The eastbound approach experiences long delays due to the existing lane configuration (one shared Left / through /Right lane). By introducing an exclusive left-turn lane and optimizing the signal timings will improve the level of service.

- *Columbia Pike and Moray Lane - LOS E on the NB and SB approaches during the AM peak hour*: The minor street experiences long delays due to shorter green time. Optimizing the signal timings will help the intersection serve at better levels of service.

The above recommendations are based on preliminary research and for information purposes only. An in-depth analysis should be performed to exactly identify the required improvements.

Synchro reports for the existing intersection analyses are included in the Appendix.

Circulation and Roads

Currently, the roadways in the East Quadrant of the study area provide the best opportunities for vehicular traffic to avoid the Leesburg Pike/Columbia Pike interchange. These include Carlin Springs Road and South Jefferson Street, which are two-lane undivided and four-lane divided roadways, respectively. Observations of traffic operations suggest that many drivers are already using these two roads for this purpose. Assuming Columbia Pike is the primary north-south route through the study area, Lacy Boulevard and Magnolia Lane in the South Quadrant are currently serving as a bypass for the Baileys Crossroads core area, including the interchange. However, these two roadways are two-lane undivided collector streets that travel through areas consisting of primarily lower-density development, including single-family dwellings. Therefore, they are not as suitable for carrying bypass, or cut-through, traffic as the roads in the East Quadrant.

Parking

Currently within the study area, on-street parking is available along the north side of the Collector-Distributor road parallel to westbound Leesburg Pike from South Jefferson Street to Carlin Springs Road. At the intersection of Columbia Pike and South Jefferson Street, on-street parking is available along the west side of South Jefferson Street. Similarly, at the intersection of Columbia Pike and Carlin Springs Road, on-street parking is available on the west side of Carlin Springs Road. In addition, all the retail and residential land uses in the study area have available parking. During the Windshield survey, it was observed that the parking lots were not completely occupied during AM, Midday and PM Peak hours.

Sidewalks

Currently in the project area, sidewalks are available along Leesburg Pike from South George Mason Drive to Payne Street. However, along westbound Leesburg Pike, sidewalk is provided only along the north side of the Collector-Distributor road from Forest Drive to Carlin Springs Road. Along Eastbound Leesburg Pike, existing sidewalk is available from Glen Carlyn Road to Payne Street. Along Columbia Pike, sidewalks are present on either side of the roadway from the Leesburg Pike interchange to South Greenbrier Street. In addition, sidewalks are available on both sides of the roadway along South Jefferson Street, South George Mason Drive and Carlin Springs Road in the project area.

Access Points

Currently in the study area, there are several driveways on either side of the major corridors which serve as access points to various retail and residential land uses. Along Leesburg Pike, between Glen Carlyn Road to Crossroads Shopping Center, there are seven (7) driveways in the eastbound direction and seven (7) driveways in the westbound direction; between Carlin Springs Road and South George Mason Drive, there are two

(2) driveways in the eastbound direction and four (4) driveways in the westbound direction in addition to the cross streets. Along Columbia Pike, between the Leesburg Pike interchange and South Greenbrier Street, there are twelve (12) driveways in southbound direction and seven (7) driveways in the northbound direction in addition to the cross streets.

Initial Observations

Preliminary Issues

The green intervals were long enough at most signalized intersections along Route 7 and Route 244 to allow all vehicles to travel through the intersections in all but a few cases. Traffic turning from northbound Columbia Pike onto northbound Carlin Springs Road was severely stacked in the AM peak, with some vehicles standing in the left through lane of Columbia Pike. Traffic turning from southbound Carlin Springs Road to eastbound Leesburg Pike was sometimes delayed through more than one signal cycle during the weekday midday peak period. Vehicle delays seemed excessive and queue lengths appeared very long during the AM and PM peak periods at the entrances to Skyline and at the intersection of South George Mason Drive and Leesburg Pike. (However, these two intersections are not within the official study area.) This congestion was likely due to high trip generation rates for the large office, apartment and condominium towers of Skyline.

The intersection of Columbia Pike and Lacy Boulevard was a problem in the AM peak period. Left turning vehicles onto Lacy Boulevard and right turning vehicles onto Columbia Pike experienced cycle failures (i.e., waited through more than one cycle before turning) because of the high northbound traffic volumes on Columbia Pike. Vehicles turning left from southbound Carlin Springs Road onto eastbound Leesburg Pike appeared to experience excessive delay during the midday and PM peak periods. The length of the protected phase for the left turn movement from southbound Carlin Springs Road appears to be insufficient for the traffic demand in a single turn lane. Also, at least ten (10) vehicles were in queues waiting to turn left from eastbound and westbound Leesburg Pike at the unsignalized intersection of Gorham Street during the midday peak period.

Trucks serving a construction site on South Jefferson Street were observed turning left onto Leesburg Pike from South Jefferson Street at the rate of three to four trucks per signal cycle. Fewer trucks from the same construction site were seen turning right onto Columbia Pike at the intersection of Columbia Pike and South Jefferson Street. These trucks were present during the AM and midday peak periods, but not the PM peak period. Truck traffic from the construction site declined throughout the day, with a probable peak around 9:00 AM.

Significant school bus activity along both study corridors was observed during the AM peak period. School bus activity was not as prevalent during the midday or PM peak periods, and no school buses were observed after 4:00 PM. School buses did not stop on

Columbia Pike or Leesburg Pike, but instead stopped on secondary streets, such as South Jefferson Street.

Pedestrians crossing outside of designated crosswalks or between signalized intersections were frequently observed at different locations throughout the weekday. During the morning hours, such crossings were common along Columbia Pike between Carlin Springs Road and Moray Lane, as well as between Moncure Avenue and Lacy Boulevard. Along Leesburg Pike, during the midday and afternoon hours, pedestrians often crossed between Carlin Springs Road and Gorham Street. Pedestrian activity was attracted to shopping centers during the weekend, with higher than normal crossings at the unsignalized intersection of Leesburg Pike and Gorham Street.

Preliminary Opportunities

As part of identifying the existing travel patterns, multiple runs of windshield surveys were conducted by driving within the study network, during which it was observed that many vehicles were turning left from southbound Carlin Springs Road onto northbound Columbia Pike, then subsequently turning right onto South Jefferson Street to travel toward Leesburg Pike. The vehicles travelling along this route are avoiding the intersection of Leesburg Pike and Carlin Springs Road, which is a positive impact because it keeps these vehicles out of the core of Baileys Crossroads. This pattern was especially noticeable during the midday and weekend peak periods. Drivers appear to be using Carlin Springs Road and South Jefferson Street as a north-eastern bypass of the Columbia Pike/Leesburg Pike interchange. This pair of alternate routes could be enhanced in an effort to redirect additional traffic volume away from the Columbia Pike/Leesburg Pike interchange.

Consistent queuing along Lacy Boulevard during the AM and PM weekday peak periods suggests that motorists are using Magnolia Lane and Lacy Boulevard as a southern bypass of Skyline and Baileys Crossroads. The existing development along these two roads is primarily residential, consisting of single-family homes; therefore, any changes to the surrounding land uses and roadway network that might result in an increase in traffic on these roads are not recommended.

The periodic truck activity and regular bus stoppages that were observed along Leesburg Pike and Columbia Pike, respectively, did not appear to have a significantly adverse impact on traffic operations in the study area. This suggests the existing roadway network could accommodate increased transit service in the area without placing an undue burden on the other vehicles using the system.

Preliminary Constraints

Most of the primary roads in Baileys Crossroads connect to major traffic generators, such as the Pentagon, Old Town Alexandria, Springfield, Ballston, and Tysons Corner. Changes to land uses outside of Baileys Crossroads could increase the number of vehicles

travelling along Leesburg Pike or Columbia Pike, decreasing the levels of service (i.e., increasing delays and queue lengths) on these roadways.

During heavy shopping periods, driveways and other private entrances along Columbia Pike could pose safety concerns due to the likelihood of certain crashes. A service road system similar to the existing system along the north side of Leesburg Pike could be a potential solution to this problem. However, lack of sufficient right-of-way along Columbia Pike may make it difficult to establish a similar system of service roads along that corridor.

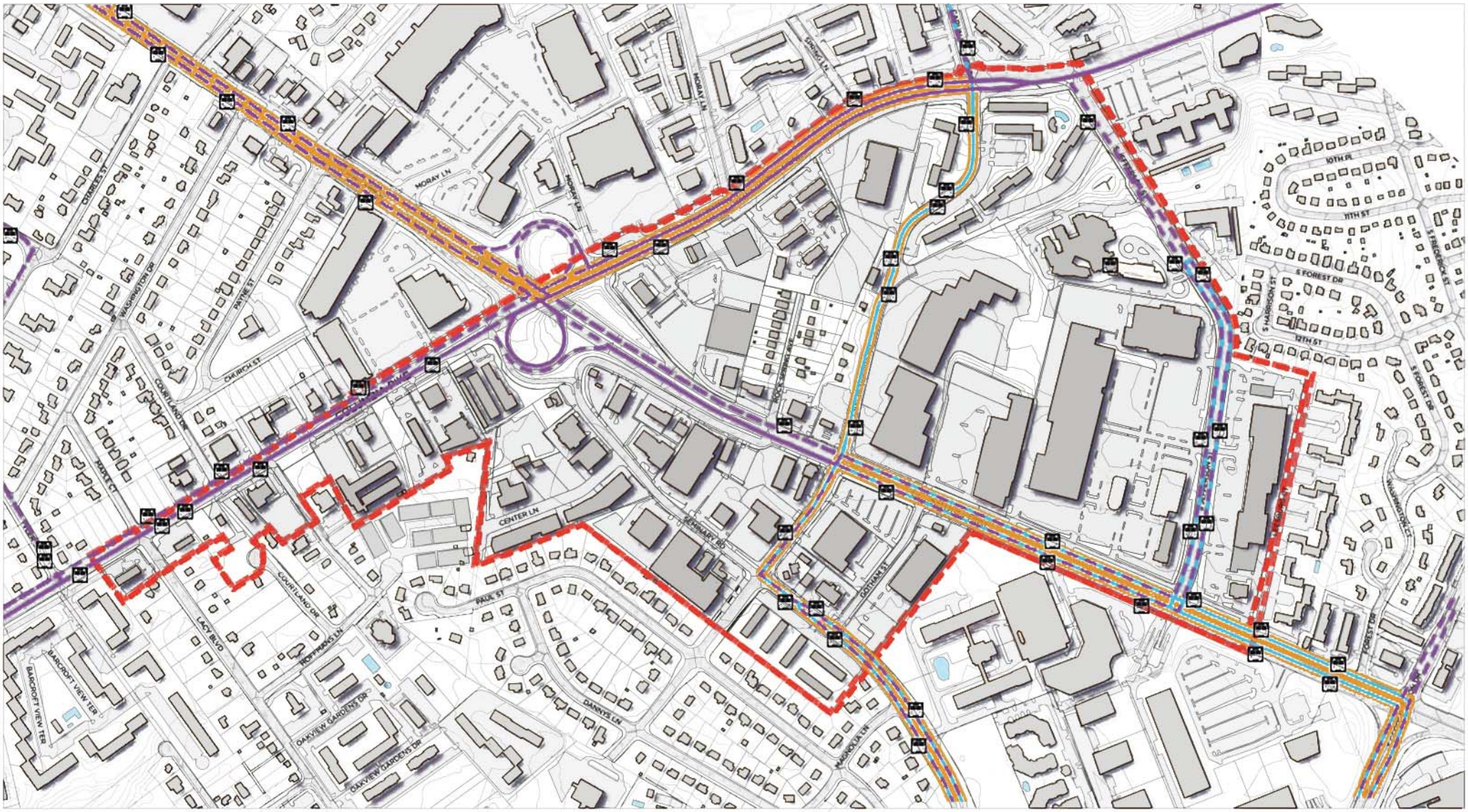
Existing Conditions - Transit

Baileys Crossroads is serviced by both fixed route bus and on-demand paratransit services. The majority of the fixed route bus system is operated by the Washington Metropolitan Area Transit Authority (WMATA), also known as Metro. WMATA offers four bus routes within the Baileys Crossroads study area which include Route 16, Route 25, Route 4, and Route 28, all with several route variations (Figure 14 – Existing Transit). Route 4 does not provide access directly within the Baileys Crossroads study area, but consists of stops within a quarter mile walking distance. In 2003, WMATA implemented the PikeRide system along Columbia Pike in Arlington County to offer enhanced and more frequent transit services along the corridor. This included improvements to transit stops, improved real-time route and scheduling information, and implementation of traffic signal prioritization for transit vehicles.

Arlington County operates Arlington Transit (ART) and although fixed bus route service is not offered within Fairfax County, access to the routes is within a quarter mile walking distance of Baileys Crossroads. Fairfax County operates the Fairfax Connector, which consists of fixed bus routes that provide access from locations throughout Fairfax County to MetroRail Stations, although there are no Fairfax Connector routes within or near the Baileys Crossroads study area. Fairfax County also operates an on-demand paratransit service known as Fastran for individuals who qualify. The Department of Defense operates a free shuttle between the Pentagon and its offices in Skyline, but this service is only available to employees. The shuttle operates on twenty-minute headways on weekdays.

Metrobus stops are designated with red, white, and blue route identification signs. Major stops consist of shelters with benches and contain route maps and schedule information. Stops that are also served by ART include information on ART services. In general, weekday bus service along Columbia Pike begins by 5:00AM and runs until 1:30AM, with Friday and Saturday service running until 3:30AM. Sunday service runs from 6:00AM until midnight. Collaboratively, the bus routes along Columbia Pike offer as many as 27 buses per hour during peak hours with 3 minute headways during peak hours (5-6 minute headways during non-peak hours).

Ridership figures for the transit routes that operate throughout Baileys Crossroads can be found in Table 3 – Average Daily Ridership by Route.



Baileys Crossroads Study

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North

0' 100' 500'
50' 200'

14. Existing Transit

- Project Limits
- Bus Stop
- Metro Route 16
- Metro Route 25
- Metro Route 28
- Existing Structure
- Existing Pavement

Table 3 - Average Daily Ridership by Route (October 2007)

Route	*Average weekday*	*Average Saturday*	*Average Sunday*
4 (all)	2,412	731	473
16 (excluding 16Y)	12,019	7,617	5,241
25 (all)	2,281	1,216	475
28 (excluding 28T)	6,265	4,418	2,291

Source: Randy White (WMATA Office of Operations Planning and Administrative Support)

In July 2005, WMATA, in conjunction with Arlington and Fairfax Counties, developed the Columbia Pike Transit Alternative Analysis, more formally known as the Pike Transit Initiative. The purpose of the effort was to consider alternative transit options connecting Baileys Crossroads with the Pentagon/ Pentagon City. The Pike Transit Initiative is based on the following goals:

1.) Increase mobility within the Columbia Pike corridor;

2.) Contribute to and serve as a catalyst for economic development;

3.) Provide for a safe environment for all modes of travel;

4.) Improve regional transportation connections; and,

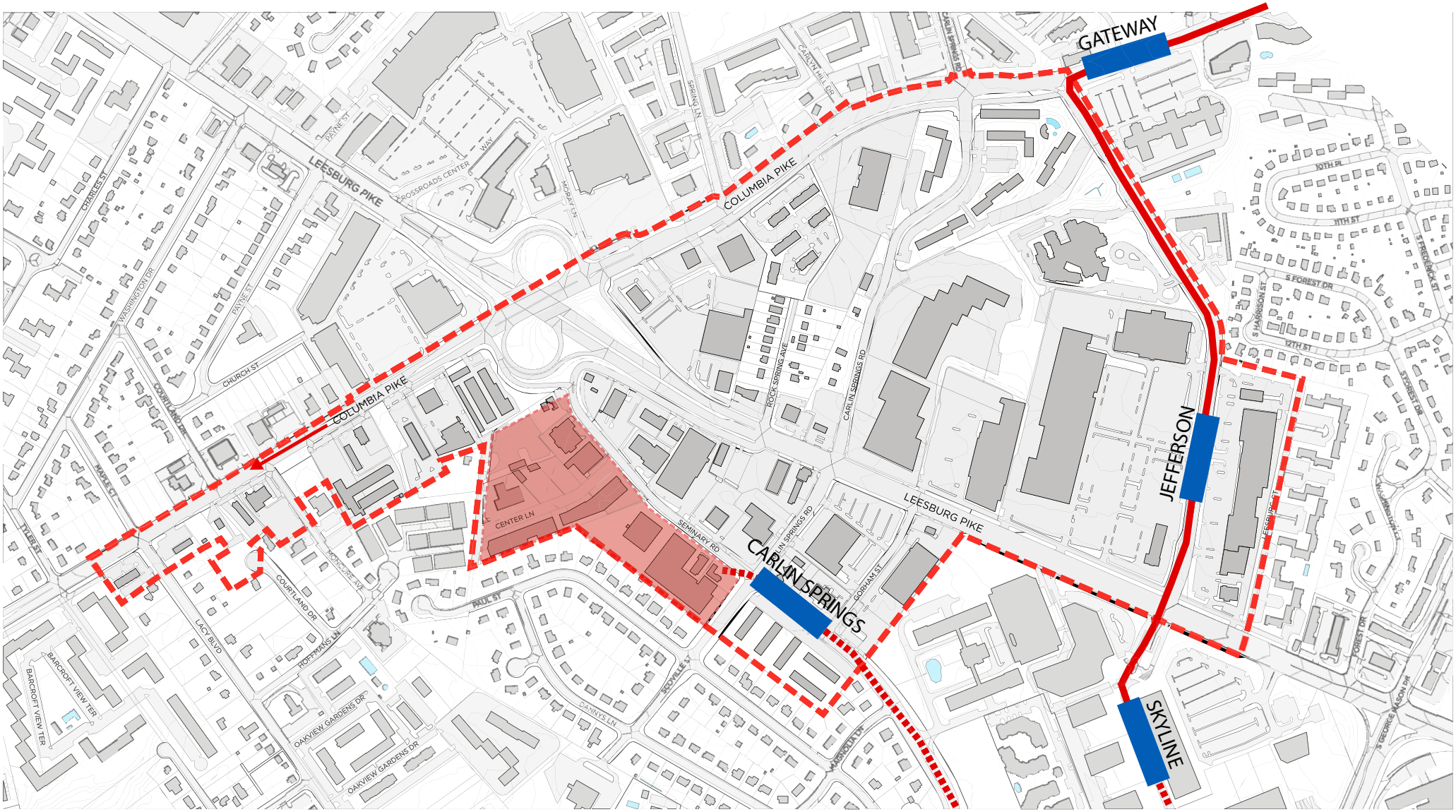
5.) Complement community goals to create a pedestrian-friendly "Main Street" environment in the corridor.

The Pike Transit Initiative studied four different alternative transit concepts for Columbia Pike and recommended that the Modified Streetcar Alternative be carried forward as the preferred alternative. The Modified Streetcar Alternative meets the goals of the effort while proposing the most cost-efficient transit alternative that introduces new transit service in the form of streetcar trams and enhanced existing bus service. This alternative consists of the following elements:

- Depending on desired headway, five to eleven 66-foot electric streetcars with a capacity of 44 seated passengers and 90 standing passengers;
- Supplemental 40-foot buses with a capacity of 40 seated passengers;
- A 6-12 minute peak hour headway for streetcars supplemented with 3 minute peak hour headways for buses;
- A typical 75-foot, low platform transit stop with shelters and other amenities;
- Fifteen passenger stations;
- A park and ride facility on Jefferson Street in Baileys Crossroads;
- Installation of a concrete track slab in one travel lane in each direction; and,
- Installation of poles to support overhead wires.

The transit route proposed under the Modified Streetcar Alternative originates at the Skyline Station. Throughout Baileys Crossroads, transit would mix with vehicular traffic and operate on the inside travel lane near the median along South Jefferson Street and along the outside travel lane on other streets (Figure 15 – Proposed Pike Transit Route).

The route exits Skyline at Leesburg Pike then continues north on Jefferson Street, mixing with vehicular traffic and operating on the inside travel lanes, with the exception of the northern end of Jefferson Street where transit vehicles would operate within exclusive



Baileys Crossroads Study

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North

0’ 100’ 500’
50’ 200’

15. Proposed Pike Transit Route

- Project Limits
- Existing Structures
- Existing Pavement
- Proposed Pike Transit R/W
- Potential Pike Transir R/W
- Contours (5’ intervals)
- Pike Transit Stop
- Potential Streetcar Maintenance Facility

transit lanes to traverse the steep grade to Columbia Pike. A proposed Jefferson Street Station located approximately midway between Leesburg Pike and Columbia Pike would include a new parking garage and serve as a park-and-ride facility. Once on Columbia Pike, the proposed transit route travels east through Arlington to Pentagon City, utilizing the outside travel lanes and intermixing with vehicular traffic. A Gateway Station is proposed on Columbia Pike just north of Jefferson Street (Figure 16 – Pike Transit Initiative Alignment).

A component of the Pike Transit Initiative was to investigate potential locations for a storage and maintenance facility for transit vehicles operating the route. One of the scenarios of the Modified Streetcar Alternative would be to locate the storage and maintenance facility just beyond the Carlin Springs Station on land south and west of Seminary Road surrounding Center Lane. This site consists of approximately eleven acres and includes several parcels containing commercial and light industrial uses as well as vacant land. The site is bordered on the south and west by residential uses. Locating a storage and maintenance facility on this site allows for transit vehicles to enter from the Carlin Springs Station and provides for a possible extension of the transit corridor to the north and/or west and simplifies potential extension to Seven Corners. As an alternative, two storage facilities could be developed, located at either end of the transit route, with one of the facilities serving as a maintenance facility.

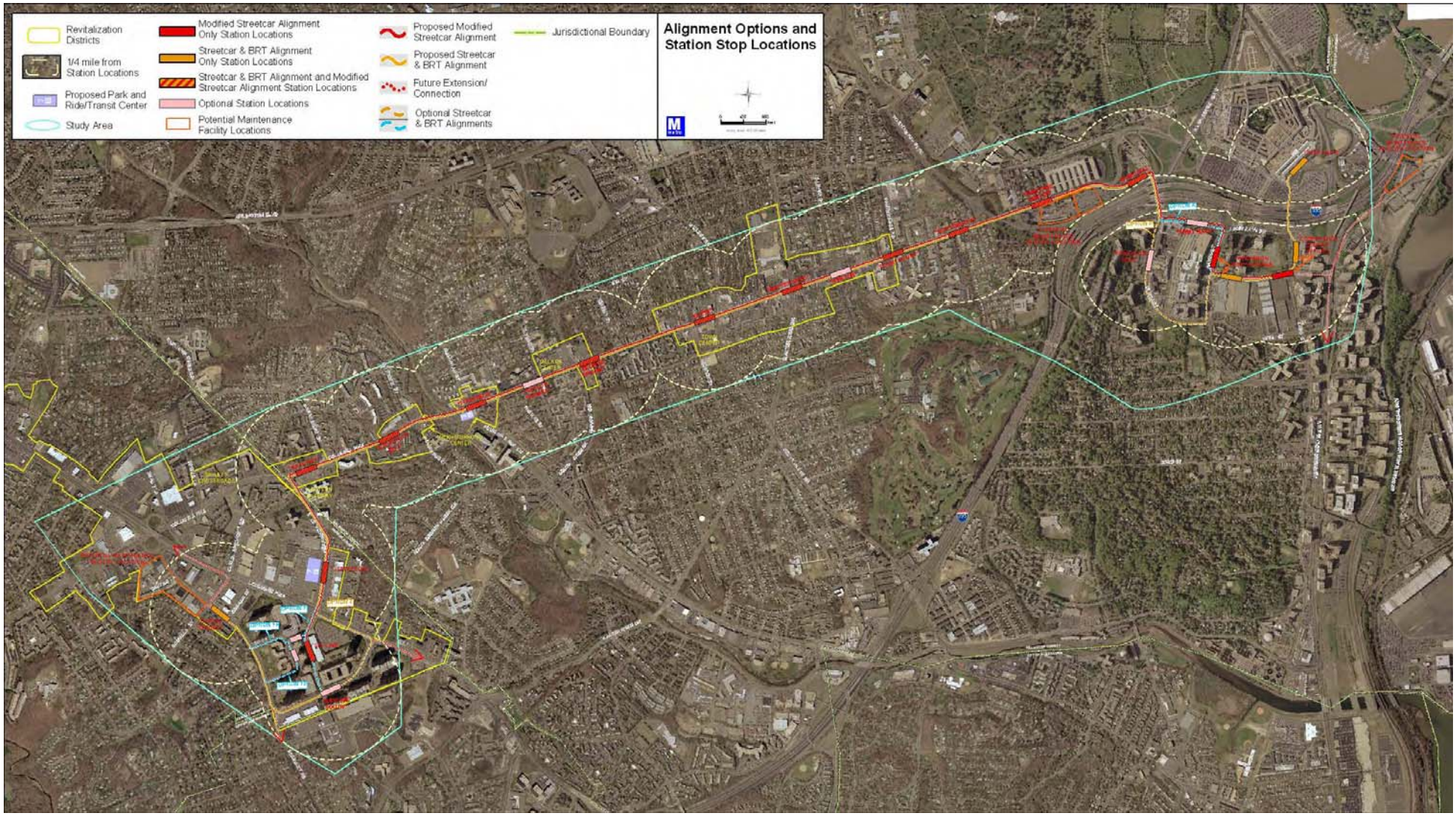
Initial Observations

Preliminary Issues

The conditions of Metrobus stops throughout the Baileys Crossroads area vary, with some stops consisting of route identification signs only. Some stops contain route maps and schedule information. Very few stops offer shelters with benches that provide cover from the weather elements and other conveniences to patrons awaiting their transit vehicle.

Mixing transit vehicles with vehicular traffic can impact the travel times of each. Transit vehicles are subject to operating at the speed of traffic, so if there is traffic congestion, transit vehicles cannot operate expeditiously. Consequently, when transit vehicles make their stops, vehicular traffic must change lanes or stack behind the transit vehicles until the vehicle clears the station. In addition to operational difficulties, construction of a streetcar system may disrupt the existing transit service and transportation network. There would also be temporary impacts from construction noise, dust, etc. that may affect surrounding neighborhoods. The Modified Streetcar Alternative requires traversing steep grades along Carlin Springs Road and South Jefferson Street. There is also a potential need for property acquisition and displacement due to location of new and expanded transit facilities, particularly in regard to potential locations for the storage and maintenance facility.

16. Pike Transit Initiative: Alignment Options and Station Stop Locations



Preliminary Opportunities

An enhanced transit system has the potential to decrease transit travel times and waits between transit headways, increase mobility within the Columbia Pike corridor, and improve regional transportation connections. Additionally, an enhanced transit system could increase transit ridership, which would result in fewer vehicle trips and reduced congestion.

Locating a station at the Carlin Springs Station provides improved transit access to Baileys Crossroads and offers maximum flexibility for future extensions of transit service to adjacent areas, such as Seven Corners. Locating the proposed storage and maintenance facility just beyond the Carlin Springs Station would provide flexibility for future extensions of transit service and facilitate access to the facility by transit vehicles. The potential park-and-ride facility on South Jefferson Street could act as a major transfer point. Implementing an enhanced transit system could contribute to, and serve as, a catalyst for economic development within Baileys Crossroads and along Columbia Pike.

Preliminary Constraints

The total capital costs, operations and maintenance costs associated with an enhanced transit system could deter its development. Although the development of the Carlin Springs Station provides maximum flexibility for future expansions, it also increases the costs of implementing the Pike Transit Initiative. Also, development of transit facilities may be constrained by the right-of-way width of existing roads proposed under the Modified Streetcar Alternative transit routes. If the storage and maintenance facilities are located within the Baileys Crossroads area, there is the potential for hazardous materials to be located on or near these sites.

Existing Conditions – Bicycle and Pedestrian Connections

Development in Baileys Crossroads is oriented around vehicular access instead of pedestrian and cyclist access. Major challenges to non-automotive modes of transportation are impacted by infrastructure, geography, urban design, and cultural diversity in the study area. Although Baileys Crossroads is defined by busy thoroughfares, large parking lots, and single-use shopping centers, the concentration of nearby office space, transit access, and inexpensive housing generates the need for enhanced pedestrian and bicycle access to these resources. Despite the different types of land uses in the area, there are few pedestrian crossings that connect the disjointed pattern of large shopping establishments to housing in, and surrounding, the study area.

Fairfax County's current trail map of Baileys Crossroads indicates that Seminary Road, Leesburg Pike and Columbia Pike are all bicycle trails. As cyclists are prohibited from riding on the sidewalks, they are forced to ride in the 2-3 feet between the rightmost lane of traffic and the debris-laden curb. The speed limit on Leesburg Pike and Columbia Pike is 45 miles per hour, almost four times the speed of the average cyclist. Because of this, most of the cyclists observed were riding only the sidewalks, even though this

presented a danger to pedestrians and transit users awaiting a bus. One asset of Baileys Crossroads is that most of the storm drain inlets are curb-inlets, with no grates in the road surface. Storm drain grates with slots parallel to the right of way can catch the front wheels of cyclists, causing serious wrecks (Figure 17 – Bike and Pedestrian Conditions).

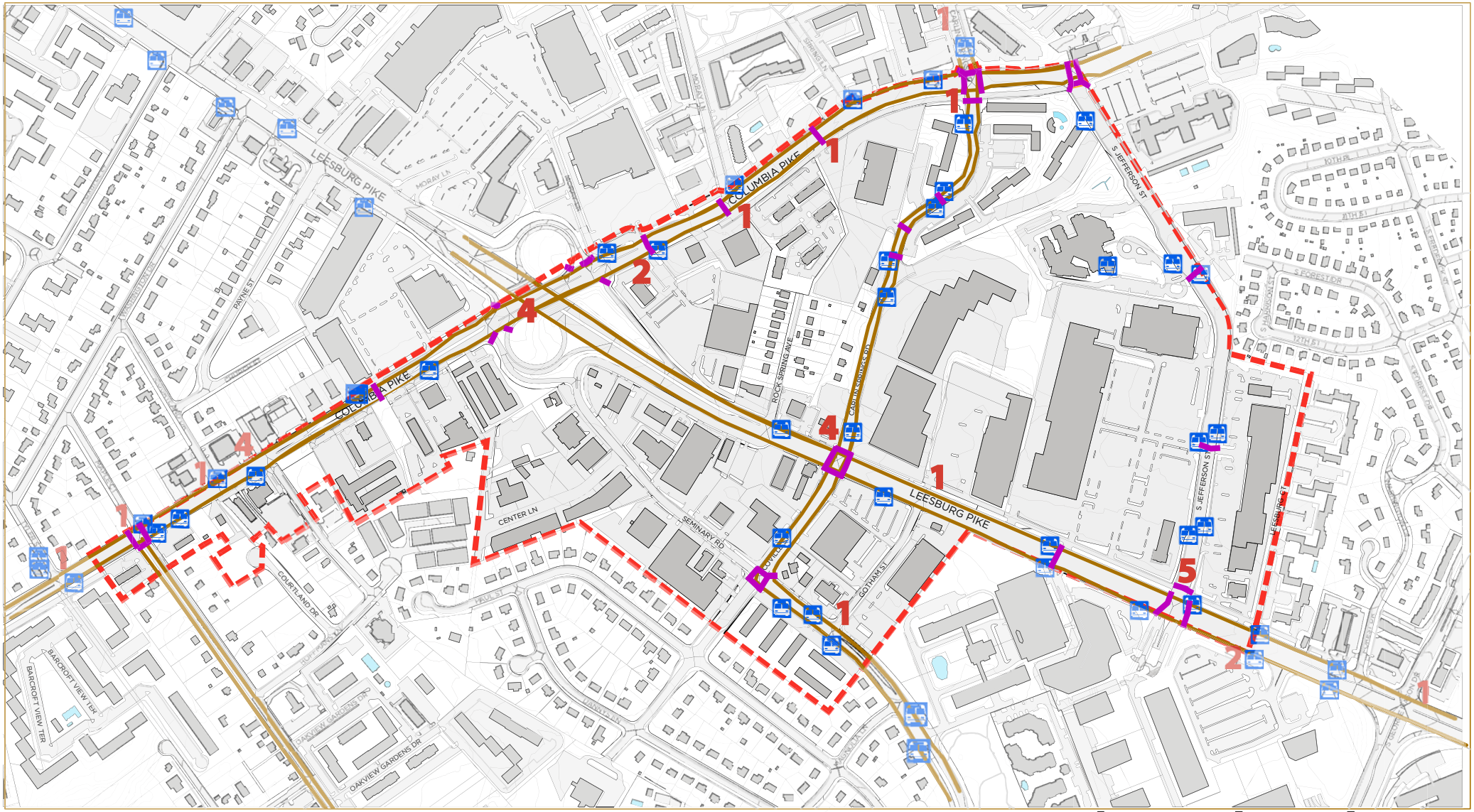
Initial Observations

Preliminary Issues

In general, the study area has an inadequate pedestrian network. While streetscaping along Columbia Pike provides an even walking surface that is well protected from traffic, sidewalks along Leesburg Pike, Carlin Springs Road and South Jefferson Street are not well protected from roads and adjacent parking lots. Sidewalks in front of the apartments on Carlin Springs Road may be outdated, but on-street parking and mature oaks make them safer pedestrian environments than many other parts of the study area. Most sidewalks in the study area lack trees and streetscape features that shield pedestrians from the elements. Existing street trees in the study area are often poorly pruned and block the path of pedestrians, rather than shade them. Many of the commercial area parking lots require pedestrians to travel along a sidewalk between a thoroughfare and a parking lot. Similarly, the service road along the north side of Leesburg Pike shelters pedestrians from traffic but does not provide an environment that is conducive to walking. Additionally, there are several areas in Baileys Crossroads where sidewalks face a blank wall for security or commercial development purposes.

Seminary Road does not have any sidewalks, but there are also no reported pedestrian accidents along Seminary Road, east of Carlin Springs Road. This is more than likely due to a lighter traffic pattern and the character of businesses in the area. Distances between crosswalks tend to cause pedestrian accidents, particularly where crosswalks are widely spaced. Long signal timings often offer pedestrians periods of slack traffic that allow for safe passage, which can be overestimated at dawn, dusk, or night. Other accidents are caused by people crossing major arterials to reach bus stops; Columbia Pike has almost as many pedestrian accidents as Leesburg Pike, due mostly to the number of people crossing the road to get to stops for Route 16 buses. Route 16 has two-to-five times as much ridership as other bus routes in the area. The majority of bus stops in the study area do not provide more than a post and a schedule, except for stops located along Columbia Pike. Recent pedestrian improvements along Columbia Pike provide bus shelters for most of the stops along Metrobus Route 16. There are only 3 shelters in the study area that are not located along the Columbia Pike corridor.

The separation of large blocks of retail and service areas by high-traffic, four to six lane forces pedestrians to walk long distances from their homes or jobs to neighborhood and community services. It is both inconvenient and unsafe for pedestrians to cross four lanes of traffic on Columbia Pike and six lanes of traffic on Leesburg Pike to reach concentrated land uses, often behind parking lots, across these thoroughfares. Traffic signals are good for controlling traffic flow but they also rely on many turn phases that



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North

17. Bike / Ped Conditions

- Project Limits
- Existing Structures
- Existing Pavement
- MetroBus Stop
- Bike Trail
- Contours (5' intervals)
- Crosswalk
- 1 Pedestrians Hit
- 2 2002-2004
- 3-4

can lead to pedestrians getting struck by turning cars. Information for crosswalks along Columbia Pike and Leesburg Pike can be found in Table 4 – Crosswalk Information.

Table 4 – Crosswalk Information

Columbia Pike

Crosswalk	*Next Crosswalk*	*Distance between (ft)*	*Ave. time to walk between (min)*	*Distance across (ft)*	*Ave. time to walk across (sec)*
Lacy Boulevard	Unsig. crosswalk near Best Buy	1300	5	70	15
Unsig. crosswalk near Best Buy	Moray Lane	1500	6	65	14
Moray Lane	Unsig. crosswalk near Dunkin Donuts	430	2	90	20
Unsig. crosswalk near Dunkin Donuts	Unsig. crosswalk near DOD Offices	580	2	65	14
Unsig. crosswalk near DOD Offices	Carlin Springs Road	760	3	70	15
Carlin Springs Road	Jefferson Street	430	2	75	16
Jefferson Street				70	15

Leesburg Pike

Crossroads Center Way	Carlin Springs Road	2400	10	100	22
Carlin Springs Road	Giant Shopping Center	1100	5	95	21
Giant Shopping Center	Jefferson Street	1100	5	110	24
Jefferson Street				110	24

There are three unsignalized crosswalks on Columbia Pike that require high awareness on the part of pedestrians and drivers in order to avoid accidents. Poor visibility and high volumes of traffic are problems during the early morning and late afternoon rush hours. Additionally, many shopping districts in Baileys Crossroads generate high traffic volumes into the night, when visibility is poor. Many signalized crosswalks on Columbia Pike are separated by long distances. One crosswalk on Columbia Pike is neither signalized nor associated with an intersection, so pedestrians rely on breaks in traffic to cross safely; there is no enforcement of the crosswalk by police or signs. The long (>90 seconds) cycle times on many of the signals along Columbia and Leesburg Pikes do produce short periods with little traffic in one or both directions. This crosswalk connects the proposed, ULI-designated Village Center with the proposed, ULI-designated Community Core. The median on Columbia Pike serves as a refuge and a conduit for pedestrians, who will sometimes walk along it while waiting for reduced traffic on one side of the road. Wide intersections provide good automotive traffic flow, but these intersections can be dangerous for crossing pedestrians. Areas with multiple curb cuts, especially along Columbia Pike, allow cars to enter onto the roadway at multiple points, further endangering crossing pedestrians. Better access management and service roads for local traffic could reduce conflicts between pedestrians, cyclists and automobiles.

Pedestrian accidents are likely underreported by pedestrians. The likely causes of this include, but are not limited to: time constraints, avoidance of police, non-life-threatening injuries, or lack of property damage. This underreporting means that the number of pedestrians struck by vehicles may be two to three times as high as reported, according to a literature review of pedestrian accident reporting in a 2003 TRB pedestrian safety paper by Michael King.

Many pedestrian trips in Baileys Crossroads focus around commercial uses or bus stops. Unfortunately, these are most frequent along the busiest thoroughfares, like Columbia Pike and Leesburg Pike. With commercial land uses and bus stops on both sides of these main highways, pedestrians are forced to cross to complete their trips. Long cycle times offer periods of low traffic between intersections, but cars entering the highway from frontage roads or curb cuts can still surprise pedestrians. Many of the busiest intersections for vehicular and pedestrian movement (Leesburg Pike and South Jefferson Street, Leesburg Pike and Carlin Springs Road) have high volumes of cars turning left or right. Pedestrians in crosswalks face increased danger from turning vehicles, as drivers may only see the crosswalk after they have begin their turns.

Preliminary Opportunities

Pedestrians cross between crosswalks throughout Baileys Crossroads and use available medians as refuges, especially along Columbia Pike. Road medians could be more widely used and better structured to shelter pedestrians and prevent crossover collisions between cars.

The bike trails identified on the Fairfax County trails plan, along Seminary Road, Leesburg Pike, and Columbia Pike, are neither marked, or striped nor paved to differentiate them from automotive traffic. Instead, bikers have only thirty inches between the curb and speeding cars. Rights-of-way on these roads are wide enough to allow better designation of these bike routes. Fairfax County is also considering moving the bike trail alignments to traffic streets with lower volumes, such as Lacy Boulevard and South George Mason Drive as an alternative to higher traffic highways like Leesburg Pike. The county is also researching connections to City of Alexandria and Arlington County bike trail networks. Improved bicycle parking facilities could allow cyclists to use bicycles as valid alternatives to cars for shopping. Additionally, secure bicycle parking facilities could allow commuters to use bicycles as the first leg of transit trips throughout the DC metro area.

Lighting along roads and sidewalks is generally automotive in scale, providing a dimly-lit and unsafe pedestrian environment, especially after dark. Columbia Pike provides dual-level lighting that is designed to illuminate paths for both pedestrians and cars. Lighting near store fronts in most shopping centers is quite good and provides a safer pedestrian environment.

The pedestrian promenades in many of the shopping centers are not designed for window-shopping and public space. They are instead designed to connect the parking lot with the storefront, and to allow trip chaining for shoppers between stores in the same strip. With modification, these commercial promenades could form the model of a refuge for pedestrian activities and public interaction.

Preliminary Constraints

Although much of Baileys Crossroads is paved, the area does not provide an environment that is conducive to pedestrians. The presence of steep slopes throughout the area also makes it difficult for people to walk and bike in the area. The lack of sidewalks and challenging topography in the study area have forced pedestrians to create informal footpaths and take advantage of breaks in fences to accommodate their travel needs. Worn footpaths along the margins of Leesburg Pike indicate that pedestrians are walking across the bridge over Columbia Pike. Pedestrians choosing to walk over the bridge are in danger of being struck by traffic, as visibility is blocked at the bridge's crest and sidewalks are not provided on the span section of the bridge.

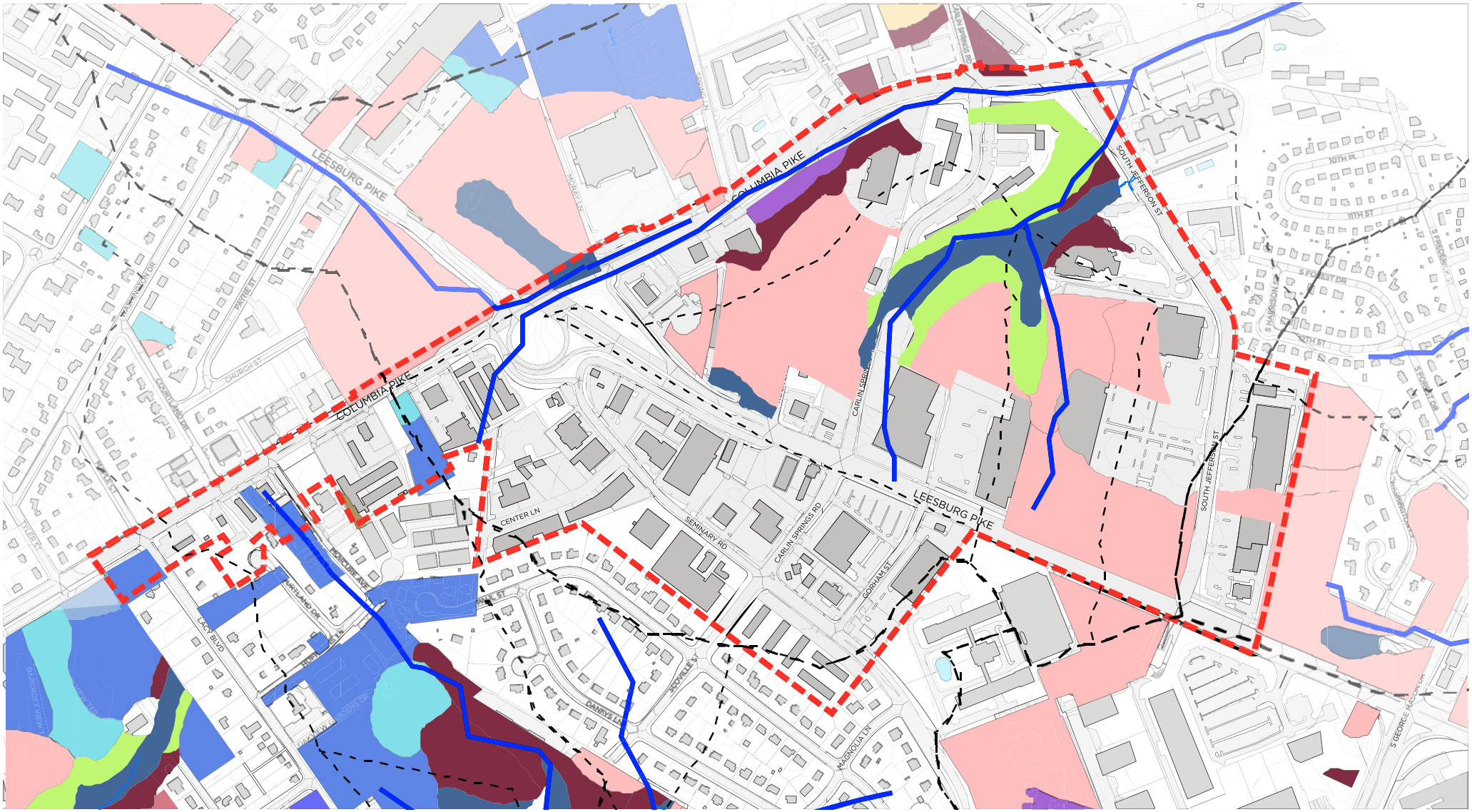
The lack of signalized intersections and frequency of speeding cars exiting and entering the Columbia Pike/Leesburg Pike interchange and areas south create a very dangerous pedestrian environment. The functionality and safety of this interchange will continue to constrain future plans unless it is radically changed.

V. INFRASTRUCTURE

Existing Conditions

Eighty percent of Baileys Crossroads is in the headwaters of the Four Mile Run Watershed and the remaining twenty percent drains to Cameron Run. The boundary between the watersheds is between Seminary Road and Leesburg Pike. As a result, there are two separate drainages for separated storm drains and sanitary sewer networks in the area. The gravity-fed sanitary sewer and storm drain networks align near natural drainages of the landforms. Much of the site drains from Carlin Springs Road and South Jefferson Street to separate storm and sanitary mains along Columbia Pike. Eighty-six percent of the study area's sewer service is provided by the Arlington County Treatment Plant along Four Mile Run. The water network is buried two to three feet underground, below the frost line and above the sanitary sewer network, to allow positive flow within buildings. The storm drain network depth is unknown, but it could be as shallow as the water network (Figure 18 – Drainage Infrastructure).

Leesburg Pike and Columbia Pike, south of the interchange, are the largest electric transmission corridors in the study area. Lacy Boulevard, Seminary Road, Carlin Springs Road and North Columbia Pike are minor transmission corridors. The remaining roads and back lots in the study area are distribution corridors.
The gas distribution network runs under the edges of streets with major distribution lines running along Seminary Road and Columbia Pike. A gas transmission line runs along Leesburg Pike to the Leesburg/Columbia Pike interchange, and continues on to Seven Corners (Figure 19 – Utilities Infrastructure).



Baileys Crossroads Study

Fairfax County, Virginia

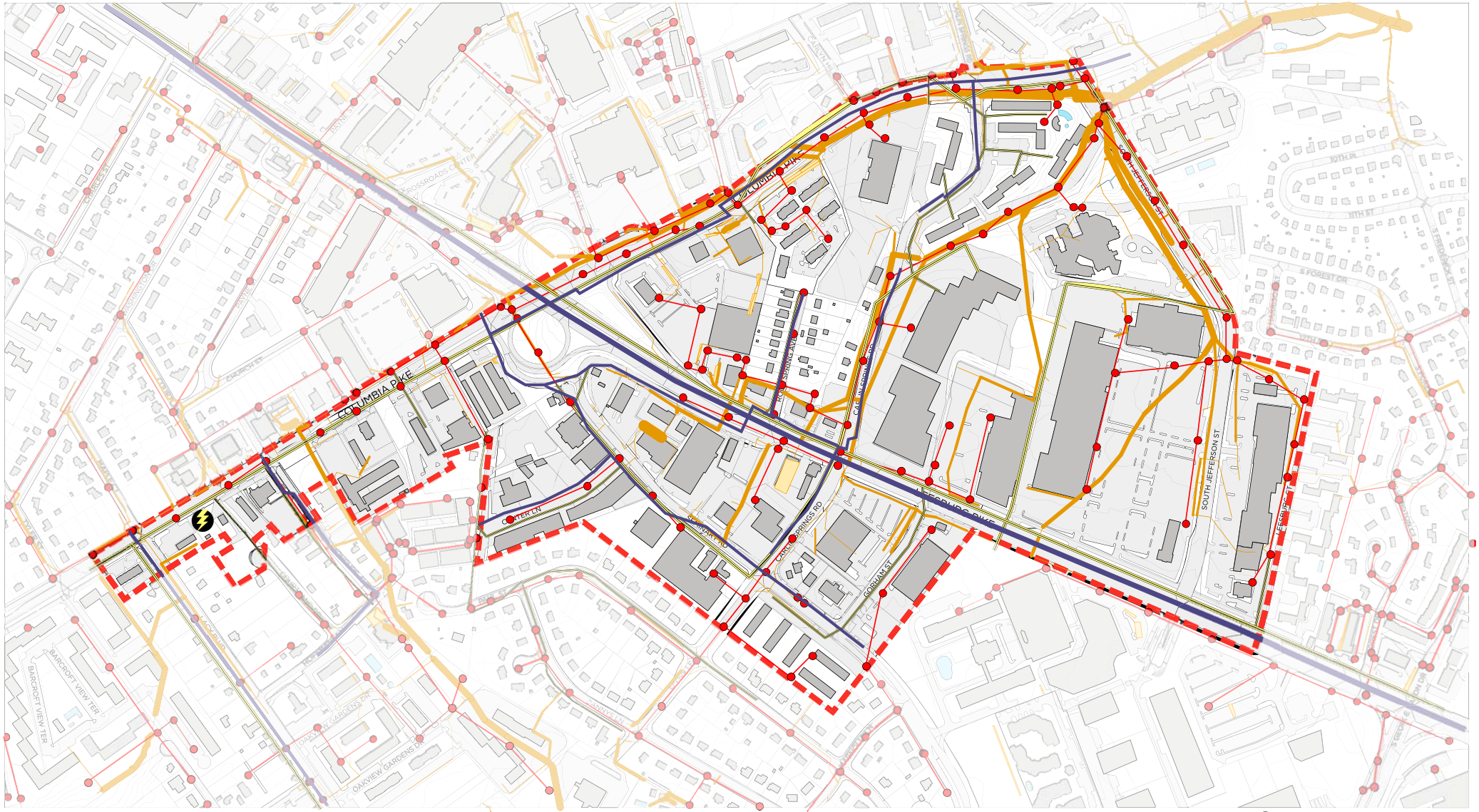
Rummel, Klepper & Kahl
Rhodeside & Harwell
Wendel Duchscherer
Basil Bauman Prost & Cole
Ferrell Madden Lewis

North

0’ 100’ 500’
50’ 200’

18. Drainage Infrastructure

- Project Limits
- Existing Structures
- Existing Pavement
- Drainage Paths
- Subwatershed boundaries
- Contours (5’ intervals)
- Beltsville Soil
- Sassafras Soil
- Hyattsville Soil
- Silt/Clay Sediments
- Alluvial Sediments



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North

0’ 100’ 500’
50’ 200’

19. Utilities Infrastructure

- Project Limits
- Existing Structures
- Existing Pavement
- Storm Drain Network
- Sanitary Sewer Network
- Contours (5’ intervals)
- Gas Network
- Electric Substation
- Electric Distribution

Initial Observations

Preliminary Issues

Seventy-five percent of the study area is either paved or built to some extent, which means that sewer main upgrades and maintenance will require the destruction of parking, traffic lanes, or structures, during excavation. The only undeveloped land that allows access to sanitary sewer and storm drainage lines is at the north end of Carlin Springs Road, near the multifamily housing along Columbia Pike. In a densely developed commercial district like Baileys Crossroads, the real estate cost of undeveloped easements would be higher than the cost of excavation in the rare need for a utility repair.

Recent Area Plan Review (APR) approvals will produce larger buildings with more use of the sewer, water, and electric infrastructure. Two APR nominations of note are 05-I-10B in the south quadrant and 05-I-09B in the east quadrant. The area under APR 05-I-10B is currently occupied by automotive, light industrial, and retail land uses, with some class C office spaces along Columbia Pike. The development described would intensify this, with mixed uses vertically and horizontally within an L shaped land assemblage south of Radley Acura. This would increase the burden on the storm and sanitary sewer networks, as these lots are on the edge of the Arlington Treatment Plant's sewershed. The modifications proposed under APR 05-I-09B are even greater, transforming sixteen single family residential lots into a single multifamily residential structure. This structure would be mixed-use, with up to 10-20% retail, and sixty to eighty dwelling units per acre in a four story structure with structured parking. This represents a tenfold increase in dwelling unit density, and a significant increase in lot occupancy. As a result, the outputs to the storm drainage network and sewer network would increase greatly with this development.

Preliminary Opportunities

The Arlington Treatment Plant is connected to eighty-six percent of the sanitary sewer lines that drain the area and discharge into Four Mile Run. Fairfax County has a contract to deliver three million gallons per day of sewage to the Arlington Treatment Plant, but currently the county is only delivering two million gallons per day. The contract for three million gallons per day to the Arlington Treatment Plant assumes the estimated output of Baileys Crossroads, Seven Corners, and Culmore. Baileys Crossroads makes up seventeen percent of Fairfax County's area within the sewershed for Arlington Treatment Plant, the majority of which is commercial space. The storm and sanitary sewer systems are completely separated in the study area, reducing the possibility of sewer overflows.
The electric service is currently above ground for almost all of Baileys Crossroads. As the utility poles provide structure for electric, telephone and cable services, they could be relocated underground for easier access, fewer outages, and improved aesthetics in the area.

Preliminary Constraints

The electric transmission corridors along Leesburg Pike and Columbia Pike are supported on wood stanchions which will need to be replaced with reinforced concrete or iron poles, or relocated underground if power needs increase significantly in Baileys Crossroads. Much of the development in Baileys Crossroads is single-story commercial, with relatively low demands for utilities. However, the demand for sanitary sewer, water, electricity and gas utilities will intensify if commercial and residential development intensifies.

Although Fairfax County is not using one hundred percent of its water and sewer treatment allocation, intensification of commercial and residential development in both Baileys Crossroads and Seven Corners will increase the demand for water and sewer service. Intense development along the headwaters of the Four Mile Run watershed is likely if the new streetcar line extends to Seven Corners.

There are several large utility facilities located in the South and East Quadrants. A Washington Gas Light, service-restricted, natural gas transmission main is buried under the median of Leesburg Pike. A Dominion Power substation is located on the 5900 block of Columbia Pike. This substation and electric transmission lines along Columbia Pike and Leesburg Pike will be difficult to underground, as their operation impacts customers beyond Baileys Crossroads.

VI. DEMOGRAPHIC AND MARKET CONDITIONS

Demographic and Economic Profile

Market Areas

The market areas being evaluated for the demographic and economic profile are as follows:

- Study area (as defined by the Fairfax County Department of Housing and Community Development) can be seen in Diagram 2 – Study Area and ½ Mile Radius
- ½ mile radius of the locus of the study area (defined as the intersection of Carlin Springs Road and Leesburg Pike)
- Baileys Crossroads Planning District (defined approximately as a 5-minute drive time from the Study area) can be seen in Diagram 3 – Planning District and Region of Influence
- Baileys Crossroads Region of Influence (defined as a 10-minute drive time from the study area.

Diagram 2 - Study Area and ½ Mile Radius

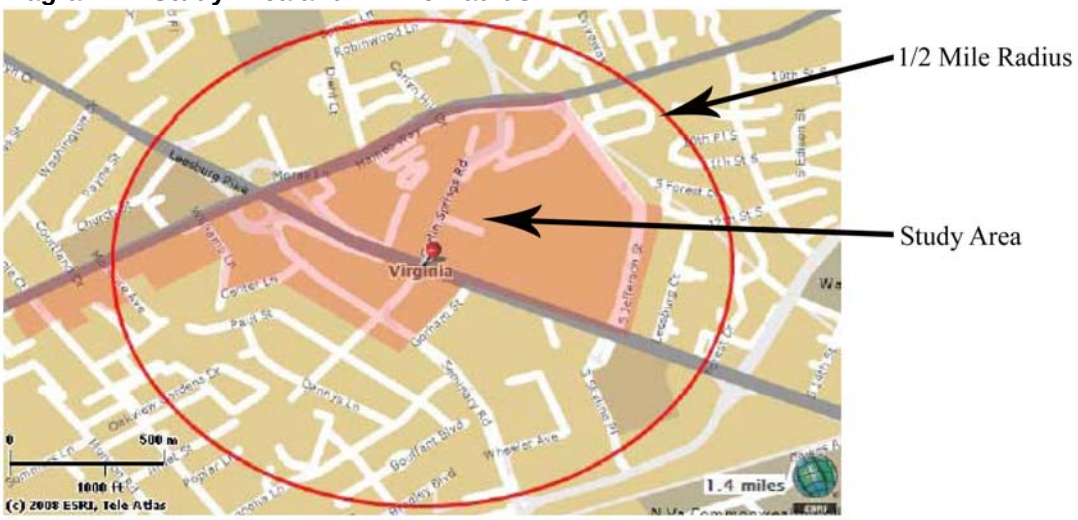

Diagram 3 – Planning District and Region of Influence

Population Profile

Between 2000 and 2007, the population within a ½ mile radius of the study area grew at a rate of 0.8% annually. By comparison, the Baileys Planning District and the larger Baileys Crossroads Region of Influence grew at an annual rate of 0.7% to 1.3%, respectively. Population projections for the 2007 to 2012 period forecast that the residential population is expected to increase throughout the environs of Baileys Crossroads at an annual rate between 0.3% and 0.7%, with higher rates of growth projected further away from the study area.

Households also experienced growth in all three market areas. Between 2000 and 2007, the number of households within a ½ mile radius of the study area increased at 0.3% annually. By comparison, the households in Baileys Planning District and in the Region of Influence grew at an annual rate of 0.2% and 1%, respectively. After adjustment for the addition of the proposed 415 unit Fairfield Development, population projections for

the 2007 to 2012 period forecast that households are expected to increase by 0.4% in the Planning District, 0.7% in the Region of Influence, and 2% in the ½ mile radius. This information can be found in Table 5 – Population and Household Projections.

Table 5 – Population and Household Projections

	½ Mile			Planning District			Region of Influence		
	2000	*2007*	*Projected Annual Rate of Growth (2007-2012)*	*2000*	*2007*	*Projected Annual Rate of Growth (2007-2012)*	*2000*	*2007*	*Projected Annual Rate of Growth (2007-2012)*
Population	10,662	11,093	0.34%	95,121	98,481	0.32%	424,069	451,763	0.78%
Households	4,392	4,469	2.02%	38,692	39,227	0.40%	184,163	193,576	0.73%
Household Size	2.40	2.46	0.16%	2.43	2.49	0.08%	2.27	2.30	0.09%
Household Income	$48,927	$61,379	3.87%	$52,555	$66,195	3.76%	$60,028	$76,858	3.86%

Source: ESRI Business Solutions

The average household size between 2000 and 2007 within the ½ mile walkshed of the Study area increased slightly during this period from 2.40 to 2.46. Its 2007 household size is comparable to the average household size of the planning district and greater than the Region of Influence.

The 2007 median household income within a ½ mile radius of the study area is $61,379, which is 8% less than the Planning District ($66,195) and 20% less than the region ($76,858). Households within the ½ mile radius possess a higher than average share of households with incomes of less than $50,000 compared to the Baileys Planning District and the Region of Influence. The proportion of households in the ½ mile radius with incomes under $15,000 is higher than that of the planning district and the region; however, according to the ULI Panel Report, there are significant pockets of affluence that lie within the core area of Baileys Crossroads, and households of relatively diverse incomes are represented within the ½ mile radius. This information can be found in Table 6 – Income Distribution.

Table 6 - Income Distribution (2007)

Income	*½ Mile Radius*	*Planning District*	*Region of Influence*
Median Income	$61,379	$66,195	$76,858
< $15,000	8.1%	7.2%	6.2%
$15,000 - $49,999	31.4%	27.4%	20.7%
$50,000- $99,999	37.6%	37.3%	36.2%
$100,000+	23.1%	28.2%	36.9%

Source: ESRI Business Solutions

The ½ mile radius exhibits slightly higher than expected proportions of populations under the age of 24 compared to the Planning District and the Region of Influence, which is consistent with its larger average household size. Conversely, young and middle-aged adults, aged 25-54, are underrepresented within the ½ mile radius (48%) compared with over 50% in the Planning District and Region. This information can be found in Table 7 – Age Distribution.

Table 7 - Age Distribution (2007)

Age	*½ Mile Radius*	*Planning District*	*Region of Influence*
< 24	31.7%	30.0%	27.0%
25-54	47.8%	51.2%	52.6%
55+	20.5%	19.0%	20.2%

Source: ESRI Business Solutions

The demographics within a ½ mile radius of the study area are very diverse, with relatively large shares of Asian (15%) and Hispanic (36%) residents which is comparable to the overall planning district (Asian 13%, Hispanic 37%) and greater than the region (Asian 12%, Hispanic 25%). According to the ULI Panel Report, a large proportion of the area's population falls into an "aspiring contemporaries" lifestyle tapestry segment[1], which is characterized by ethnic diversity and lower than average incomes, although solidly middle class and upwardly mobile.

There are approximately 514 business establishments within the 1/2 mile radius, with a large proportion these in the County-defined study area. Over 45% of all establishments are in the Services sector. Retail Trade represents the second largest industry sector with nearly 24% of the total as evidenced by the various large format retailers within the Baileys Crossroads Area. Finance, Insurance and Real Estate (FIRE) constitutes the third largest component of the study area's industry with 11.5% of all establishments, underscoring the study area's strength in commerce and its position as a commercial core. In terms of jobs, the Services Industry represents the largest employer within the study area employing 2,259 workers; Retail Trade employment is second at approximately 2,059; and communications is a close third at approximately 2,009. The ½ mile radius' share of employment in communications is particularly high (25.3%), approximately 17% higher than in the planning district.

Table 8 – At-Place Employment Distribution in a Half-Mile Radius

	Businesses		**Employees**	
Employment	***Number***	***Percent***	***Number***	***Percent***
Communication	6	1.2%	2,009	25.3%
Retail Trade	122	23.7%	2,059	25.9%
Finance, Insurance, Real Estate	59	11.5%	570	7.2%
Services	232	45.1%	2,259	28.4%
Government	8	1.6%	68	0.9%
Other	87	17.0%	986	12.3%
Totals	514	100.0%	7,951	100.0%

Source: ESRI Business Solutions

The information in Table 8 – At-Place Employment Distribution in a Half-Mile Radius, shows that there are 122 retail trade establishments in the 1/2 mile radius that generated an estimated $140 million in sales. Food Services and Drinking establishments represented $20 million of these sales, and retail trade accounted for the remaining $120 million.

[1] The ULI Panel Report used "lifestyle tapestry segments" to characterize demographic cohorts that contribute to an area's identity. These tapestry segments are generally classified by age, ethnicity, education level, and incomes to reveal consumer preferences and lifestyle patterns.

Market Overview

Despite slower regional economic growth, the Northern Virginia office market remains stable. Lease rates and annual absorption of office space continue to increase, albeit at a slower rate than in years past. Dominated by government agencies and defense contractors – which are relatively more insulated from economic market conditions than other industries – the continued diversification of office tenants within Fairfax County and in the Baileys Crossroads submarket contributes to a more stable office market. As tenant demand in the near term is expected to originate from corporate consolidations and marginal expansions rather than large-scale relocations (1st quarter 2008, CBRE), new construction in the County is projected to be limited to smaller buildings or build-to-suits.

The Baileys Crossroads area is a major retail center. The types of retail centers found in Baileys Crossroads are wide ranging, and include community shopping centers, freestanding retail, neighborhood shopping centers and regional retail centers. The general retail market in Fairfax County and the Baileys Crossroads area continues to be strong with lower vacancy rates (2.0%, compared to 3.7% for DC Metro, as of 1st quarter, 2008 CBRE), positive absorption of space, and higher rents ($33.35 per SF, compared to $27.71 for DC Metro, as of 1Q, 2008 CBRE). Opportunities for high quality retail space, both large and small, in particular from retailers accustomed to working in mixed-use developments that serve the needs of the community and the region will continue to be in demand in the near-term within the Baileys Crossroads area. While self-storage/warehousing and automobile-related uses are prevalent in Baileys Crossroads, they have less future development potential as the area transitions to higher intensity uses such as commercial office and retail space. There appears to be a limited market demand for destination-related retail, such as movie theatres and lodging facilities in the Baileys Crossroads market area.

The Northern Virginia residential market has been impacted by the national housing slump; Fairfax County in 2007 recorded a 17% decrease in both total residential sales and units sold (Metropolitan Regional Information Systems). The residential market in Washington D.C. however continues to be one of the strongest markets in the nation, buoyed by its regional economy. The market for apartments, in particular affordable housing and lower priced condominiums, is particularly strong in Fairfax County as still-high prices for single-family homes are forcing many first-time home buyers to look at condominiums instead as their first home. New residential construction in Baileys Crossroads will likely be in the form of infill and mixed-use development that capitalizes on its commercial activity and the proposed streetcar line along Columbia Pike.

Initial Observations

Preliminary Issues

The Baileys Crossroads study area is a hub of commercial activity. Its uses are predominantly business services, light industrial and large format retail, and its transition into more intensive uses (office space, mixed-use development catering to higher end

consumers) will have significant land use and market implications. Furthermore, the Columbia Pike Streetcar Initiative, once completed, will likely significantly increase developer interest in the area and enhance its competitive position in all market sectors. As the area becomes a more proven place in which to invest, and as the Washington Metro commercial real estate market tightens, Baileys Crossroads may expect to see increased development pressures not just in the retail market, but in the office and condominium markets as well. The 2006 ULI Advisory Services Panel Report notes that Baileys Crossroads has the potential to be a major employment center like the Rosslyn-Ballston Corridor and can accommodate another "3.5 million square feet of office space, 400,000 square feet of urban retail, and 3,000 housing units [assuming provision of mass transit occurs]". However, it is uncertain how Base Realignment and Closure (BRAC) impacts at Aberdeen Proving Ground (Maryland) and Fort Belvoir (Virginia) will affect the tenancy of defense-related uses currently located in Skyline Center.

The area is a melting pot of ethnic diversity, particularly among Hispanics and Asians, and the ethnic diversity gives the area identity and culture which is reflected in the business establishments. Many of these establishments not only serve the local community but the region as well, providing a unique market in terms of business and retailing opportunities. Integrating the ethnic community in future development plans will be vital to maintaining the area's identity and niche market opportunities.

In terms of future redevelopment, individual parcel size and ownership of properties within the study area are major issues that will impact redevelopment. Land assembly in this area has not happened to the extent desired to facilitate larger redevelopment efforts. The study area south of Leesburg Pike is generally comprised of smaller parcels (half acre to one acre in size) with disparate property owners. Property uses in this area include light industrial services (auto-repair, self-storage, etc.) and retail. Redevelopment activity in this area has occurred slowly, notwithstanding the proposed development on the Weissberg Property along Columbia Pike. The study area north of Leesburg Pike is comprised of larger lot sizes and higher quality large format retail shopping centers, such as an REI Sporting Goods Store, Gold's Gym, and residential apartment complexes along Carlin Springs Road. The property ownership in this area is less scattered, and few parcels are vacant. Redevelopment in the study area south of Leesburg Pike will likely be smaller, infill development, while redevelopment north of Leesburg Pike has the potential to include larger mixed-use developments.

Preliminary Opportunities

The demographics in the Baileys Crossroads study area and the surrounding region present opportunities for selected redevelopment and revitalization. The higher incomes of Fairfax County households compared to the overall Washington D.C. Metro Area present opportunities for higher-end retail development – including pedestrian scale, mixed-use – that draw from County residents. Demographic attributes of households in this income range include growing consumer clout and a preference for more upscale

shopping and dining options (such as Barnes & Noble, Best Buy, Harris Teeter, Cheesecake Factory, etc.)[2].

The study area's ethnically diverse business community and demographics also present opportunities for smaller, independent ethnic themed restaurants and stores to complement national brand chain stores. These may be incorporated into mixed-use developments whose diverse shops and neighborhood functions enhance the overall appeal of the environment. The ethnic retail nodes enhance Baileys Crossroads as a destination for Metro area shoppers, and this combination of mixed-use, mixed-tenant (chain and independent, ethnic and non-ethnic) retail may appeal to a wide variety of people, including ethnic minorities, young professionals and empty-nesters with higher disposable income, and the surrounding higher income communities who provide the "critical mass" to support these uses.

Despite the slower regional economy, the Washington Metro Area's job market is among the strongest in the nation and is projected to continue to grow. Furthermore, office tenants from other parts of the region, including the District, may increasingly elect to relocate or expand into Northern Virginia due to the higher rents, real estate taxes, and operating expenses in other locations in the region. The Baileys Crossroads area has an opportunity to capture some of this turnover as it continues to mature as an office node. The area currently has a diversified office employment base comprising government and defense-related industries, along with finance, insurance, and real estate (FIRE) services.

Certain aspects of the property ownership of smaller, owner occupied sites (e.g. auto-repair, self storage warehouses) may be conducive to initiating redevelopment. The majority of smaller properties in the study area are owner occupied which may make opportunities to work with existing property/business owners easier. According to a 2005 analysis conducted by BBPC on revitalization strategies for the South Quadrant of Baileys Crossroads, several property and business owners were planning to renovate their properties, and some were willing to sell or redevelop their properties in the long term (10+ years) and expressed interest in working with the County. While assembling multiple parcels presents an obstacle for redevelopment, the willingness of property owners to discuss future development of their properties is encouraging. Engaging these property owners to be proactive and addressing their business needs (e.g. relocation assistance, participation in new development) is important for any redevelopment efforts, particularly given the lack of available vacant land. One particular project that may spur revitalization within the study area is the planned mixed-use redevelopment of 4.5 acres of property along Columbia Pike by the Weissberg Corporation, a local retail and office developer. This development is planned to include office space for a satellite government tenant, ground floor retail space, and a residential component.

[2] Based on characteristics of the top two ESRI Community Tapestry Segments for Fairfax County: *Enterprising Professionals* (20% of total population) and *Suburban Splendor* (15% of total population)

Preliminary Constraints

The current economic and housing market climate has an impact on planned housing in the study area. Even in mixed-use developments, market conditions may have an increasingly adverse effect on those developments whose residential component is larger, with a higher proportion of units being market rate and for-sale. In particular, developments contingent on the success of larger (unit size), higher priced condominiums catering to the upper end of the market will be more susceptible to the recent market conditions, while those offering smaller, more affordable or less expensive units may find more of a market opportunity.

The Baileys Crossroads study area continues to suffer from an unattractive suburban "strip" development pattern. This is partially a result of light industrial uses formerly dominating the area (auto repair shops, maintenance facilities, self storage warehouses, etc.) which require larger lot sizes and lower densities. Both the development patterns and land uses in the area contribute to its poorer image and pose obstacles to attracting higher-end residential and mixed-use development.

The scattered property ownership in the study area is also a hindrance to revitalization efforts. The study area's smaller parcels and their numerous property owners have made site assembly to spur revitalization more difficult. Many wish to maintain the "status quo" and are not interested in selling their properties; and often those with an interest in selling large amounts of monetary compensation or intend to hold onto land for speculative use.[3] Many property owners of underutilized properties in the study area continue to operate their businesses or lease out to tenants as they are currently doing, and are less interested in expending the capital necessary to revitalize their properties (self-storage warehouses in particular generate a steady stream of revenue given the lack of those in the County).[4] Additionally, many property owners who wish to enhance their existing properties or undertake development perceive the development process from the County as cumbersome and bureaucratic, with a long approval process, and therefore elect not to undertake improvements.[5] Lastly, because of the lack of vacant land within the study area, most of the development activity will be in the form of redevelopment (e.g. tear down and rebuild, expansions, conversions to different uses).

VII. ASSESSMENT

Understanding the implications of existing conditions within the Baileys Crossroads study area, as framed by the context of previous work completed for the area, will facilitate the next stage of the planning process – the development of responsive conceptual alternatives for the two quadrants within the study area. Therefore, this Assessment section serves as the "bridge" between existing conditions and concept

[3] "Southeast Quadrant of the Baileys Crossroads Commercial Revitalization District: Implementation Strategies and Revitalization Opportunities". Produced by Basil Baumann Prost Cole & Associates, 2005
[4] Ibid
[5] Ibid

development. As such, it focuses on each of the major issues addressed in the report in terms of the following:

- Key findings of the existing conditions analysis
- Summary of the approach taken with regard to this issue in the *2006 ULI Panel Report*
- Thoughts regarding how this information informs the upcoming development of concepts

Land Use

Existing land use in the study area is suburban/single use in nature, with uses widely separated from each other, structured to accommodate vehicular rather than pedestrian access, and separated by large thoroughfares instead of tightly-knit street grids. Mostly regional- and neighborhood-serving commercial and auto-service uses dominate this area, with smaller pockets of office, multi-family residential, and older, light industrial land uses. The area lacks sufficient transitional buffers to protect incompatible adjoining land uses, such as auto-service lots and commercial centers that adjoin residential communities. In addition, the area is completely deficient in its supply of useable open space amenities, necessitating both current and future residents to travel outside the study area to access either passive or active open space facilities.

The December 2006 *ULI Panel Report on Baileys Crossroads* suggested that the East Quadrant of this study be redeveloped as an Urban Square, and that the South Quadrant be redeveloped as a Village Center. Overall potential redevelopment identified by the ULI panel would incorporate a series of linked open spaces, a hierarchy of neighborhoods, development at a human-scale, places to walk, and frequent links to transit. All in all, the ULI recommendations focused on the creation of a more urban and urbane framework for the Baileys Crossroads area, including cohesive mixed-use development that could easily transition to identifiable character areas, coordinated land uses that would create niches for redevelopment, and a strong network of pedestrian and transit connections. In relation to the 2007 edition *Fairfax County Comprehensive Plan*, the land use pattern recommendations generated in the final phase of this study will influence the current, and intended, land uses for each of the subunits of Land Units C and D within the study area boundary, as specified in the 2007 Comprehensive Plan.

In general, the overall land use approach suggested by the ULI panel is supported by the findings of this report. Overall land use within the study area should transition from segregated, horizontal land use patterns to more vertical mixed-used development, with predominant uses varying within the study area to reflect the character differences of its various “neighborhoods”. For example, areas such as those along Carlin Springs Road, Center Lane, and the west side of South Jefferson Street, could likely sustain more residential mixed use, which might incorporate vertical mixed-use development of multifamily residential on all upper floors combined with ground floor commercial (office or retail) uses. Further south along Columbia Pike, consideration should be given to the creation of additional neighborhood-focused development that might include multi-

family and row house residential uses with small neighborhood-scale commerce (office and retail) at key locations. This land use would transition well to the surrounding, existing residential development. Alternatively, more regionally-oriented, commercial mixed-use designations might be appropriate along the proposed streetcar corridors. Potential development along these corridors might include ground floor commerce continuous within the district, with commercial or residential uses on the upper floors, similar to the patterns proposed in the ULI report. Whatever the land use pattern developed for the area, however, emphasis must be placed on creation of a human-scaled, pedestrian-oriented environment that relies on a connected street grid and open space linkages as the "skeleton" for all future development in the area.

Urban Design

The major urban design issues identified within the study area include its lack of visual coherence and physical connectivity, the image of the area as dominated by older suburban strip commercial development bisected by large and busy roadways, the almost complete absence of a "human" or pedestrian scale within the area's public realm, and a dearth of public amenities such as identifiable and useable open spaces. These issues characterize Baileys Crossroads and are the key obstacles to creating a more urbane place to live, work and shop. The lack of a functional and attractive "public realm", including streetscapes that are defined by a human-scale of development and are pleasant and inviting to stroll along, open spaces that connect neighborhoods and provide settings for community-based activities, and beautiful gateways that provide a positive sense of identity for the area, limits the degree to which Baileys Crossroads can become a viable "place" that can attract major economic and community interests. Nevertheless, opportunities for change are emerging, with perhaps the biggest incentive being provided by the proposed streetcar network that offers the potential for improved levels of access, concentrations of mixed-use development, and a reduction in the dominance of vehicles within the area. Taken together, these opportunities can create an exciting and sustainable, urban mixed-use environment within our study area.

The 2006 ULI study identified similar issues, and optimistically noted that the currently on-going land assembly will allow opportunities for connectivity to occur with appropriate guidance. The ULI team identified the mega-block character of Baileys Crossroads as a key obstacle to change, and recommended that streets serve as links within districts rather than remain the dividers of the area's four quadrants. More specifically, the ULI team developed two concepts of relevance for the current study area: the Urban Square (a large area encompassing the entire East Quadrant and extending into the South Quadrant) and the Village Center (encompassing the South Quadrant and including both sides of Columbia Pike). The Urban Square – defined as the "downtown" for Baileys Crossroads -- envisioned dense mixed-use redevelopment including neighborhood retail, residential and office facilities, public parks and community serving culture and entertainment venues. This area would be served by the proposed streetcar system. In contrast, the vision for the smaller Village Center included redeveloping the buildings on Center Lane to provide historical continuity, with a focus on pedestrian-oriented shops and restaurants as well as lower density residences and

commercial structures. The Weissberg property was seen as "setting the stage" for redevelopment efforts in this area.

We heartily concur with ULI's statement that streets should be the links between districts. We would, however, strengthen that idea by proposing that the existing roadways through the area be re-conceived as urban streets, that is, as civic places and destinations in themselves. These re-conceived 'thoroughfares' would represent the larger scale of a new hierarchy of civic streets that will provide a rich diversity of connectivity. Each distinctive street would be defined by continuous facades of buildings containing vertical mixes of use. It is through the creation of this hierarchy of streets and uses, with densities and urban design characteristics based on distances from transit, that the creation of neighborhoods would be guided.

Although the ULI study establishes a quarter-mile radius for development around each streetcar stop, we believe that it might be useful to explore an even finer grain of development with the highest densities and highest mixes of uses located within an eighth-mile distance. This distance is suitable for continuous ground floor retail as it fits the more leisurely shopping pace of pedestrian activity. A more residential environment with more limited neighborhood-oriented retail could still lie within the ¼- mile radius of the streetcar stops -- a distance that would allow residents to walk to light rail for their daily commute.

Using this approach for guiding use and density, a Baileys Crossroads "downtown" might then focus on a tighter area than that proposed by ULI. Within the eighth-mile model, this downtown neighborhood may be focused along South Jefferson Street and both sides of Leesburg Pike at Skyline to utilize the access created by the streetcar system. Leesburg Pike may become a civic place that can gracefully accommodate pedestrian, transit and automotive traffic and become a neighborhood focal point rather than a barrier. Creating pedestrian and use links across Leesburg Pike, even to the extent of incorporating Skyline into a Baileys "downtown" concept would make valuable use of the opportunities presented by the proposed new streetcar system. The possibility of this re-conceived Leesburg Pike will need to be carefully studied in order to ensure that it can accommodate current and future access and circulation needs. At the same time, the ULI study recommends the construction of a pedestrian bridge over Leesburg Pike, somewhere in the vicinity of Skyline. Based on our team's previous experience, we have concerns about this approach, about its impact on street-level activities and on the utility of such a structure. We do, however, feel that there are some new at-grade connections that can be made throughout the study area that can more adequately address this issue. These will need to be explored as concepts are developed in the next stage of the project.

For areas along Carlin Springs Road, a more residential mixed-use neighborhood is a possibility. Within this area, a new larger signature open space should be explored as a way to create an amenity for that neighborhood, emphasize the community-scale of the area, and increase pervious surface in this urban environment.

As with the ULI's Urban Center concept, it may also be desirable to more clearly focus the Village Center neighborhood along Columbia Pike, where a lower-scaled residential mixed-use neighborhood core could fit more easily into the existing residential fabric. Once again, the implications of this change will be examined more fully during the next stage of the planning process. It is clear, however, that the team will consider a full range of open spaces opportunities for the study area as these are appropriate to a more urbanized scale of development flanked by comfortable and linked surrounding neighborhoods. In addition to the possible larger "signature open space" referred to above, additional open spaces might take the form of public greens or squares, located directly adjacent to street car stops or centrally located within neighborhoods, each becoming a distinctive public focal place for its area (Figure 20 – Urban Design Framework Opportunities).

Environmental Resources

The existing conditions assessment has identified lack of open space, vast amounts of paved parking, several areas of challenging topography change, and inefficient and environmentally undesirable stormwater management practices as key environmental concerns in the Baileys Crossroads area. These issues will be ameliorated through the creation of the type of mixed-use districts recommended by ULI, although that study did not specifically address the environmental aspects of their recommendations.

The Environmental Protection Agency and other regulatory groups have identified smart growth techniques such as clustered mixed-use infill on previously developed sites that make use of existing infrastructure as a Best Management Practice for limiting and controlling stormwater runoff. Mixed use infill reduces the need for development on green field sites and provides opportunities for maximizing transit options. This approach, as applied to the current study, suggests the efficacy of re-using the prevailing strip commercial sites in the area as a base for creating new mixed-use neighborhoods.

Defining the appropriate treatment of stormwater runoff in an urban environment is, however, more challenging. Ponds in parking areas, the usual approach for suburban areas, will not work well in most urban settings. Underground storage is acceptable but open vegetated systems can be successfully used in private courtyards and public open space if appropriately designed. New techniques for collecting and treating storm water runoff as part of streetscape design have been developed and will be highly appropriate to incorporate into new street designs for the area if they do not disrupt the all important retail edge in the core shopping areas.

While many of the topographic changes in the area are man-made, having been created to accommodate earlier development activities, the team will need to explore ways to work with the area's current topography so that one can minimize building energy consumption, the visual impact of new buildings and stormwater run-off, while maximizing comfortable pedestrian access.

Green roofs and storm water collection for re-use in cisterns would complement the inherently sustainable characteristics of mixed-use infill development to transform an area of environmental loss to one of high sustainability. In addition, the inclusion of mass transit in the form of the streetcar system would allow the future residents of Baileys Crossroads to greatly reduce their carbon footprint.

Transportation: Access and Circulation

Traffic

Although the study corridors illustrate fairly acceptable operating conditions, long queues and spill-overs from vehicles turning left at some intersections in the study area were observed during AM and PM peak periods. In addition, unacceptable levels of service (LOS 'F') were observed at the intersections of South George Mason Drive at Skyline Drive and Columbia Pike at South Jefferson Street; however, this issue can be addressed by adopting signal timing optimization. Traffic circulation in the study area could also be improved by implementing a system of street grids. In addition to this concept, various other traffic improvement concepts will be created, using information from the quantitative and qualitative traffic analyses and the urban design analyses, to achieve better levels of services in and around the study area.

The current patterns of traffic in Baileys Crossroads indicate that some savvy travelers bypass the interchange between Leesburg Pike and Columbia Pike when making trips either from north-east or south-east. This pattern of traffic could present an opportunity for the downscaling of the half-cloverleaf at the core of Baileys Crossroads. With a clear and logical system of perimeter roads located one-half to one mile away from the Leesburg/Columbia Pike interchange, traffic using the crossroads for direction change could avoid the interchange, thereby reducing traffic volumes through the study area. Automotive-centric uses, such as superstores and repair shops, could cluster around these perimeter roads, to allow the core of Baileys Crossroads to be refigured as a walkable transit hub.

Pedestrian Circulation

The ULI report makes pedestrian connectivity a priority for Baileys Crossroads, and suggests developing safe promenades and clustering associated land uses. Clustering land uses is difficult in a study area such as Baileys Crossroads, which has major retail establishments bisected by two highways. Additionally, segregating pedestrians from vehicular traffic produces single-use streetscapes that endanger any pedestrians caught crossing them.

While the streetscape improvements along Columbia Pike have made the environment better for bus riders, the amount of curb cuts and unsignalized intersections still endanger pedestrians. However, if several businesses along Columbia Pike shared entrances to parking lots, both pedestrian and vehicular safety could improve. Another problem in the study area is the median along Columbia Pike, which offers refuge for pedestrians, but

the orientation of the adjacent crosswalk is not configured to maximize pedestrian safety. Existing crosswalks in the location of medians should be redesigned to ensure that the median provides safe pedestrian refuge. In addition, bus stops should be arranged with a mixture of both near-side and far-side stops to allow passengers to transfer easily from the same street corner.

Bicycle Environment

Fairfax County is currently considering a plan to emphasize the use of secondary roads, such as Lacy Boulevard and South Jefferson Street, in the bicycle trails network through Baileys Crossroads. These roads would be less dangerous for bicyclists and offer cleaner air options than the current trail routes along Columbia and Leesburg Pikes. In order for cycling to be a viable alternative to the automobile, bicycle routes must be accessible to the same commercial centers as the automotive network and should connect to a larger bicycle network. A network of bicycle paths through Baileys Crossroads could parallel both Leesburg Pike and Columbia Pike to offer safer access to jobs, housing, and shopping. This network should also link to the bicycle trails planned for the adjoining jurisdictions of Arlington County and the City of Alexandria.

Infrastructure

The ULI report does not specifically mention the infrastructure capacity of Baileys Crossroads, as it is generally well-served by electric, water, sewer, and storm drain networks. Electric utilities could be undergrounded for easier access, fewer weather-related blackouts, and more attractive, open streetscapes. Sewer treatment capacity should allow for 25-33% more development in Baileys Crossroads. Some new developments, such as the Cooley Godward area plan for intensified development on Rock Spring Avenue, will require increases in local sewer and water capacity. The infrastructural impacts of this development will serve as a model for the impacts of intensified land use. For example, transit oriented development around the Jefferson Station could transform two to three acres of parking into multistory mixed use buildings, with significant increases in sewer, water, gas, and electricity demands.

Transportation: Transit

Advancement of the Pike Transit Initiative will be an important factor in the future of Baileys Crossroads. In order to achieve the preferred redevelopment vision as articulated under the ULI study, enhanced transit service to the area is essential. The Modified Streetcar Alternative, identified in the Pike Transit Initiative, should be advanced into the planning concepts developed for Baileys Crossroads. This alternative introduces new transit service in the form of streetcar trams supplemented by an enhanced bus service. The current configuration of the Modified Streetcar Alternative ends at Skyline. Ideally, the transit line should be extended further into the core of Baileys Crossroads, continuing west on Seminary Road. This extension would provide improved transit service, serve as a potential catalyst for redevelopment and revitalization, and improve the options for future extensions of the line beyond Baileys Crossroads to the west.

The proposed "Gateway Station" on Columbia Pike just east of the intersection with South Jefferson Street should be designed as a gateway into the area. There is a fairly large concentration of residential development at this eastern edge of the study area which would benefit from access to transit. The proposed Jefferson Street Station is also located at the eastern edge of the Baileys Crossroads area in an area with strong redevelopment and infill development potential. The availability of transit service to this area could reduce the amount of parking required, which would facilitate redevelopment in the large areas of surface parking in this vicinity. It is recommended that parking structures be considered in this vicinity, to alleviate the amount of surface parking needed and also to act as a shared park and ride facility for the transit stop. The Skyline Station, south of the Baileys Crossroads study area, should be centrally located to the Skyline development and incorporate dense, mixed-use development as described above in the urban design section.

Extending the transit route beyond Skyline to the Carlin Springs area offers enhanced transit service to the core of Baileys Crossroads, but has several implications with regard to the location of a storage/maintenance facility for the system. There are at least two concepts on the table for consideration at the present time. One is to locate the storage and maintenance facility in the Center Lane area with the Carlin Springs station located near the intersection of Seminary Road and Carlin Springs Road. The storage and maintenance facility would occupy approximately 11 acres and be located in an area that is currently used for light industrial uses. This is the preferred location for the maintenance facility if it is located within the Baileys Crossroads area. The maintenance facility would be a very large, one-story, single use warehouse, functioning as a storage and maintenance area for transit vehicles and streetcars. It would use up a sizable amount of the available area for redevelopment of the area identified by the ULI report as the 'Urban Village.' It should be noted that a facility of this size would minimize street level activity and be less likely to promote ancillary redevelopment.

A second concept would be to locate the storage and maintenance facility at one of the alternative locations identified in the Pike Transit Initiative. The ULI report recommends an intermodal center in this vicinity, potentially at the former airport hangar on Leesburg Pike. An intermodal center at this location could act as a transfer point between nearby bus routes and the streetcar route. The center could also incorporate retail and other commercial uses to serve passengers and help establish a new image for the area, more in line with the 'Urban Village' identified in the ULI report. Reducing the size and changing the function to an intermodal center makes it more likely that the facility would serve as a catalyst for mixed-use redevelopment of the area. It also increases the potential that existing structures with redevelopment potential (mainly along Center Lane) could be reused, helping to preserve some of the historic character of the area, as recommended in the ULI report. The intermodal facility could include some storage and maintenance activities for transit cars, at a smaller scale than proposed for the 11-acre facility.

Locating the Carlin Springs Station near the intersection of Seminary Road and Carlin Springs Road, as shown with the maintenance facility option, does not maximize transit

service. Assuming most users want to be within a quarter-mile walking radius of their destination, the proposed Carlin Springs Road location is too far east to comfortably serve businesses along Columbia Pike, and its walking radius overlaps with the Skyline station quarter-mile radius. Locating the transit station in the vicinity of the former hangar shifts the proposed new transit station further west, minimizing the overlap with the Skyline Station radius. It provides better access to areas along Columbia Pike, the adjacent side of Leesburg Pike, and the intersection of Leesburg Pike and Columbia Pike that were previously not within easy walking distance to proposed streetcar stops.

Under any future development scenario, improving connectivity and enhancing pedestrian facilities will be an integral component of maximizing the benefits of transit-oriented development. Typically, the strongest demand for development occurs within the quarter-mile walking radius (5-10 minute walk) of a transit station. Physical and psychological barriers (e.g. difficulties in crossing Leesburg Pike, 'super block' urban form of development, grade changes) limit the transit accessibility of the East Quadrant, even though portions of this area fall within the quarter-mile radius of proposed transit stations. Easy accessibility to transit stations will be a key factor in determining the extent of redevelopment. Development concepts must ensure that station locations are easy and pleasant to walk to, and that barriers to accessibility are addressed. This may entail establishing pedestrian walkways through blocks, providing safe passages (crosswalks, pedestrian lighting) and/or adding amenities, such as streetscaping.

Demographic and Market Conditions

Demographic and Economic Profiles

The demographic and economic characteristics in the Baileys Crossroads Study Area and its environs are very diverse, not only with regard to ethnicity but also in terms of other demographic characteristics such as income levels, age ranges, and lifestyles. This diversity is also reflected in the area's mixture of retail/service establishments (e.g. higher-end to lower-end, ethnic to non-ethnic, independent to chain) that cater to different segments of the surrounding communities as well as the region.

The ULI Study discusses the diverse character of the Baileys Crossroads study area, noting that, while there are a larger proportion of households in lower income brackets, there are significant pockets of higher income households within the core of the Study Area. Furthermore, many of these lower income households are upwardly mobile and solidly middle class. The mixing of these diverse households provides Baileys Crossroads with a unique local and regional identity.

The diversity of income levels, age groups, ethnic groups, and business composition noted in the ULI Study and confirmed in this Existing Conditions analysis points to several implications for the future of the Baileys Crossroads built environment:

- The higher-income household segments within the Study Area and surrounding market area, combined with the presence of international residents, will continue

to make the area attractive to national retailers as well as independent restaurants, services and retailers serving the local population.

- A challenge will be to maintain the area's unique identity and niche markets while taking advantage of additional market opportunities.
- Policies and land use plans that promote co-location of different retail establishments, such as ethnic and non-ethnic, independent and chain, will be critical to maintain the area as a unique shopping destination and continue to serve the existing residents in the community.

Property Ownership

Parcel sizes and property ownership patterns within the Study Area will have major implications for future land use and redevelopment opportunities. The Study Area north of Route 7 is generally comprised of larger parcels with large format, long-term lease retailers. The Study Area south of Route 7 is comprised of smaller parcels with more disparate property ownership; land assembly in this area will be needed to facilitate redevelopment.

One of the highlights of recent development activity in the Baileys Crossroads study area is the Weissburg property redevelopment project, a 4.5-acre site near Columbia Pike and Williams Lane that is currently being planned for a mixed-use development. This project points to a key implication of the disparate property ownership patterns: property owner interest in redevelopment, renovation, or sale of a property is crucial for transformation of Baileys Crossroads.

The Market

The current commercial office and retail market in Northern Virginia remains stable, while the residential market has been impacted by the national housing slump. However, as discussed in the ULI Study, prospects for transformation of Baileys Crossroads should be driven not by the short-term market forecast and current challenges, but rather the area's long-term potential.

As noted in the ULI Study, the Columbia Pike Streetcar Project has the long-term potential to transform Baileys Crossroads into a large employment and commercial center capable of supporting development on par with the terminus of the Rosslyn-Ballston corridor surrounding the Ballston Metro stop. This is particularly the case as the Rosslyn-Ballston corridor approaches build-out. The ULI Study's phased build-out plan for another 3.5 million square feet of office space, 400,000 square feet of urban retail, and 3,000 housing units at Baileys Crossroads ranges from 10 to 15 percent of the current inventory along the Rosslyn-Ballston Corridor. This estimate is based on the potential for Baileys Crossroads to serve as the western anchor for the next corridor of urban redevelopment extending out from Washington, DC.

Long-term market potential comparable with development at the Ballston Metro node poses several implications for the future environment of Baileys Crossroads:

- Likely transition of smaller businesses and light industrial uses in Baileys Crossroads to higher intensity, higher value uses – such as new office space and new mixed-use development.

- Concentration of neighborhood-serving retail, residential, and office facilities, with public parks and community-serving culture and entertainment venues, in a mixed-used format at the crossroads of the Study Area - in the area closest to the Columbia Pike Streetcar line bound by Columbia Pike to the north and Leesburg Pike to the south.

Baileys Crossroads Study

Fairfax County, Virginia

Rummel, Klepper & Kahl
Rhodeside & Harwell
Wendel Duchscherer
Basil Bauman Prost & Cole
Ferrell Madden Lewis

North

0' 100' 500'
50' 200'

20. Urban Design Framework Opportunities

- Pedestrian Bridge
- Proposed Future Street Car Expansion Gateway
- Street Car Alignment
- Project Limits
- Existing Structures
- Existing Pavement
- Existing Public Thoroughfares
- Commercial Mixed Use
- Residential Mixed Use
- Neighborhood Mixed Use
- Regional Commercial
- Civic Focal Points
- Safety Improvements
- Enhanced Views
- Potential Connections